Jackfruit 1990 - 2004

Author A. K. Singh and G. N. Singh

Title Effect of IBA and NAA on rooting of air layers of jackfruit (Artocarpus heterophy

Year 2004

Source title Scientific Horticulture

Reference 9(41-46

Abstract

Studies on the effect of IBA and NAA, at 2500, 5000, 7500 and 10000 ppm, and their combination (1:1) on the air layering of jackfruit was conducted in Kanpur, Uttar Pradesh, India during 1998-99. The combination of IBA + NAA at 5000 ppm each showed the best effect on the rooting of the air layers of jackfruit. IBA alone at 5000 ppm improved root initiation of the air layers. Rooting under the growth regulator treatments was superior compared to the control.

Author A. Mukprasirt and K. Sajjaanantakul

Title Physico-chemical properties of flour and starch from jackfruit seeds (Artocarpus h

Year 2004

Source title International Journal of Food Science & Technology

Reference 39(3): 271-276

Abstract

Jackfruit (A. heterophyllus) is one of the most popular tropical fruits grown in Asia. The objective of this study was to compare physicochemical properties of native flour and starch from jackfruit seeds from Thailand to commercially modified starches (Novation 2300 and Purity 4). The colour of jackfruit seed starch was lighter than that of Novation 2300 starch but darker than the Purity 4 starch. The jackfruit seed starch had a narrower gelatinization temperature range than Purity 4 and required less gelatinization energy compared with modified starches. The peak viscosity of jackfruit seed starch was lower than commercially modified starches. Likewise, setback viscosity, swelling power and solubility of jackfruit seed starch showed similar trends. Results from this study suggest that native starch from jackfruit seed could be used as an alternative for modified starches in a system needing starch with a high thermal and/or mechanical shear stability.

Author A. S. Chauhan, S. G. Afroze, M. N. R. Ramesh, R. Y. Avula, M. N. Rekha and R.

Title Optimization of enzymatic liquefaction of papaya (Carica papaya L.) and jackfruit

Year 2004

Source title Journal of Food, Agriculture & Environment

Reference 2(2): 108-113

Abstract

Enzymatic liquefaction of jackfruit and papaya pulp, using a commercial enzyme (pectinase) was investigated and evaluated by response surface methodology. The effects of enzyme concentration, incubation time and hydrolysis temperature were found to be significant in case of jackfruit, whereas juice yield in case of papaya was influenced by enzyme concentration and incubation time. In the present study, polynomial equations were derived using multivariate analysis for predicting the reduction in alcohol insoluble solids and increase in juice yield for jackfruit and papaya, respectively. The models were verified experimentally against predicted response and were found to be suitable.

Author B. S. Inbaraj and N. Sulochana

Title Carbonised jackfruit peel as an adsorbent for the removal of Cd(II) from aqueous

Year 2004

Source title Bioresource Technology

Reference 94(1): 49-52

Abstract

The fruit of the jack (Artocarpus heterophyllus) is one of the popular fruits in India, where the total area under this fruit is about 13,460 ha. A significant amount of peel (approximately 2714-11,800 kg per tree per year) is discarded as agricultural waste, as apart from its use as a table fruit, it is popular in many culinary preparations. Treatment of jackfruit peel with sulphuric acid produced a carbonaceous product which was used to study its efficiency as an adsorbent for the removal of Cd(II) from aqueous solution. Batch experiments were performed as a function of process parameters; agitation time, initial metal concentration, adsorbent concentration and pH. Kinetic analyses made with Lagergren pseudo-first-order, Ritchie second-order and modified Ritchie second-order models showed better fits with modified Ritchie second-order model. The Langmuir-Freundlich (Sips equation) model best defined the experimental equilibrium data among the three isotherm models (Freundlich, Langmuir and Langmuir-Freundlich) tested. Taking a particular metal concentration, the optimum dose and pH required for the maximum metal removal was established. A complete recovery of the adsorbed metal ions from the spent adsorbent was achieved by using 0.01 M HCl.

Author D. Ashoka, A. G. Malitha and S. Indira

Title Mineral status in blood serum of domesticated elephants (Elephas maximus) and c

Year 2004

Source title Zoos' Print Journal

Reference 19(7): 1549-1550

Abstract

This study was conducted to determine the levels of sodium, potassium, calcium, magnesium and phosphorus in the blood serum of 15 domesticated elephants from 3 districts (Kandy, Matara and Colombo) of Sri Lanka, and in (except phosphorus) the leaves and bark of coconut (Cocos nucifera), jak (Artocarpus heterophyllus) and kitul (Caryota urens), which are commonly included in the diets of domesticated elephants in Sri Lanka. Blood samples were collected from the ear vein of elephants between September 2000 and March 2001. The mean serum levels of sodium, potassium, calcium, magnesium and phosphorus were 130.8 mM/litre, 5.5 mmol/litre, 10.6 mg/litre, 1.8 mg/litre and 4.3 mg/litre, respectively. In coconut, jak and kitul, respectively, the mean contents (g/kg dry matter) were 3.6, 0.5 and 0.6 for sodium; 8.8, 28.6 and 25.4 for potassium; 1.1, 52.9 and 6.8 for calcium; and 6.3, 4.0 and 2.7 for magnesium. Results suggest the presence of mineral deficiencies, especially in potassium, among domesticated elephants in Sri Lanka. As neither of the plants studied can adequately provide all the studied minerals, a mixture of herbage including grasses may be an alternative diet for elephants.

Author D. Rameshwar

Title Phytochemistry of some useful forest plants.

Year 2004

Source title Indian Forester

Reference 130(4): 456-460

Abstract

This paper describes the isolation and characterization of chemical constituents from the different parts of 9 forest plant species with various biological activities. These species include: Vitex negundo, Tetrameles nudiflora, Terminalia citrina, Dalbergia stipulacea, Eucalyptus species, Pinus roxburghii, Adina cordifolia, Vateria indica and Artocarpus heterophyllus.

Author J. G. S. Maia, E. H. A. Andrade and M. d. G. B. Zoghbi

Title Aroma volatiles from two fruit varieties of jackfruit (Artocarpus heterophyllus La

Year 2004

Source title Food Chemistry

Reference 85(2): 195-197

Abstract

The aroma volatiles from two fruit varieties of jackfruit (Artocarpus heterophyllus) growing in the Amazon were obtained by simultaneous distillation-extraction and analysed by GC-MS. The major components identified in the aroma concentrate of "hard jackfruit" variety were isopentyl isovalerate (28.4%) and butyl isovalerate (25.6%). The aroma concentrate of "soft jackfruit" was dominated by isopentyl isovalerate (18.3%), butyl acetate (16.5%), ethyl isovalerate (14.4%), butyl isovalerate (12.9%) and 2-methylbutyl acetate (12.0%). These results are compatible with the fruits morphological variation and their distinguished aromas, previously observed.

Author J. K. Hore and S. K. Sen

Title Interaction of non-auxinic compounds with IBA in the regeneration of roots in air-

Year 2004

Source title Scientific Horticulture

Reference 9(47-52

Abstract

In an experiment conducted thrice in each year (June, July and September during 1984 and 1985), the effects of auxin and non-auxin compounds and season of layering on the regeneration of roots in jackfruit cv. Mondouri Gala air-layers were studied. Layers were made by removing ring of bark of 2.5 cm from shoots at 20-25 cm below the tip. The ringed portion was etiolated by black alkathene sheets for 15 days. The non-auxinic chemicals p-hydroxybenzoic acid (PHB), ferulic acid (FA) and ethrel [ethephon] each at 1000 ppm were applied in 50% ethyl alcohol on the upper portion of ring area twice at 10-minute intervals. Indole-3-butyric acid (IBA) was employed at 2500, 5000 and 10 000 ppm in lanolin paste. After treatment, each layer was covered with a mixture of garden soil, sand and cow dung manure (2:1:1) and wrapped with white polyethylene sheet. Layers were removed after 40 days. Survival percentage was recorded three months after planting. In ringed and etiolated shoots of jackfruit, the maximum rooting was observed with 1000 ppm FA + 5000 ppm IBA during June (94.9%) and September (94.2%), but 1000 ppm ethrel + 5000 ppm IBA gave the highest rooting percentage in July (95.8%) vs. 62.5, 56.3 and 66.4% in the untreated control, respectively. IBA caused a lower rooting percentage at 10 000 ppm. The root number, root length and survival percentage were highest in layers treated with 1000 ppm PHB + 5000 ppm IBA, 1000 ppm ethrel and 1000 ppm FA + 5000 ppm IBA, respectively.

Author M. A. M. Khan and K. S. Islam

Title Nature and extent of damage of jackfruit borer, Diaphania caesalis Walker in Ban

Year 2004

Source title Journal of Biological Sciences

Reference 4(3): 327-330

Abstract

A field investigation was carried out on the nature and extent of the damage caused by the jackfruit borer, Diaphania caesalis [Glyphodes caesalis] (Pyralidae: Lepidoptera), in Mymensingh and in other jackfruit growing areas in Bangladesh. Jackfruit borer attacks the tender shoots, male and female spikes and fruits of all development stages. At the flowering stage, the larva bores into spike and feeds on internal tissues. At initial infestation, anthesis of the male spikes do not occur and the affected spikes later become rotten and shaded off from the plant. Severely infested female spikes drop off before fruit setting. The jackfruit borer attacks the jackfruit at different stages of fruit development. Early infestation results in deformation of fruits and sometimes dropping of the immature fruits. The larvae bore into the mature fruit and cause damage to the edible part. Later infested fruits frequently get rotten due to entrance of rainwater in to the fruits. In nursery, larvae damage the tip of jackfruit sapling causing retardation of growth of the saplings and initiation of lateral branches. The average percentage of fruit infestation was 27.44%. The number of bore and amount of damage per infested fruit was 1.47 and 525.37 g, respectively. The reduction of market price due to jackfruit borer infestation in 6 locations of Bangladesh ranged from 27 to 39%.

Author M. D. Miah and M. M. Rahman

Title Tree and shrub species preferences and planting materials used by sub-religious c

Year 2004

Source title Journal of Forestry Research

Reference 15(1): 55-60

Abstract

An exploratory study of the traditional homestead forest of two different religious groups (Hindu and Muslim) in one selected floodplain area of Bangladesh was conducted over a period of six months from January to June 2002. The species' (both tree and shrub) preferences, similarities, use and sources of planting materials, spacing and location of species in the homesteads of both Hindu and Muslim communities were studied. It was found that Mangifera indica as tree species and Ocimum sanctum [O. tenuiflorum] as shrub species were the best preferred species of the Hindu community. Artocarpus heterophyllus as tree species and Lawsonia inermis as shrub species were found best preferred by the Muslim community. Floristic similarities between the two groups were found 86.57% in tree species and 78.48% in shrub species. Both seed and seedlings of tree and shrub species as planting materials were used by the highest percentage of both the religious communities. For tree species, homegarden was reported to be the highest source (39%) and for shrub species, nature was the highest source (40%), which was found in the Hindu community.

Author M. L. Khan

Title Effects of seed mass on seedling success in Artocarpus heterophyllus L., a tropica

Year 2004

Source title Acta Oecologica

Reference 25(1/2): 103-110

Abstract

I examined the effects of seed mass on performance of seedlings of Artocarpus heterophyllus L. (Moraceae), a large evergreen late successional shade-tolerant tree species in three contrasting light conditions. Seed mass varied many fold from 1.5 to 14 g in A. heterophyllus. Germination and germination time showed a significant correlation with seed mass. Germination differed significantly among three light regimes (50%, 25% and 3%). Seed mass and light level significantly affected seedling survival. The seedlings that emerged from large seeds survived better than those from small seeds under all light regimes. Survival of seedlings was maximum in 25% light regime for all seed mass classes but did not differ significantly from that at 50% light regime. Survival was significantly lower in 3% light as compared to 50% and 25% light regimes. Seedling vigor (expressed in terms of seedling height, leaf area and dry weight) was also significantly affected by seed mass and light regimes. Seedlings that emerged from larger seeds and grew under 50% light regime produced the heaviest seedlings, while those resulting from smaller seeds and grown under 3% light regime produced the lightest seedlings. Resprouting capacity of seedlings after clipping was significantly affected by seed mass and light regime. Seedlings emerging from larger seeds were capable of resprouting several times successively. Resprouting was more pronounced under 50% and 25% light regimes as compared to 3% light. Success of A. heterophyllus regeneration appears to be regulated by an interactive effect of seed mass and light regime.

Author R. Peran, N. W. Pammenter, J. Naicker and P. Berjak

Title The influence of rehydration technique on the response of recalcitrant seed embry

Year 2004

Source title Seed Science Research

Reference 14(2): 179-184

Abstract

The concept of imbibitional damage arose when it was observed that considerable leakage of cell contents could occur when dry seed or pollen tissues are plunged directly into water. It is now common practice to imbibe dehydrated tissue slowly, to permit the re-establishment of functional membranes, prior to placing the tissue into liquid water. However, this argument may not hold if the tissue of interest is inherently desiccation-sensitive. Slow drying of desiccation-sensitive (recalcitrant) seeds or excised embryonic axes results in damage at high water contents, because it permits time for aqueous-based deleterious processes to occur. The same argument may apply if partially dried material is re-imbibed slowly, as this technique will also expose the tissue to intermediate water contents for protracted periods. This hypothesis was tested using embryos or axes from seeds of three recalcitrant species (Artocarpus heterophyllus, Podocarpus henckelii and Ekebergia capensis). Excised material was rapidly dried to water contents within the range over which viability is lost during drying, and re-imbibed either rapidly, by plunging directly into water, or slowly, by placing the material on damp filter paper or exposing it to a saturated atmosphere for several hours. Although details of the response differed among species and developmental stage, in all cases direct re-imbibition in water resulted in higher (or similar, but never lower) survival than either of the slow rehydration techniques.

Author S. Nadanakunjidam

Title Folklore plants used in veterinary medicine by tribals of Attapadi, Western Ghats.

Year 2004

Source title Advances in Plant Sciences

Reference 17(1): 61-65

Abstract

An ethnobotanical study was carried out during 1997-99 of plants used in veterinary medicine by the tribals of Attapadi, Western Ghats (Kerala, India). Phytotherapy was the only method of curing diseases of animals (including poultry and cattle) among the aborigines of Attapadi hills, particularly for those who were at high elevations. Twenty-six types of preparations derived from 25 plant species were used to cure 15 animal diseases. Plant part wise analysis showed that the leaves were mostly used for preparing drugs. Paste was the most common type of preparation. Bone fracture was the most common disease next to diarrhoea, and these were cured by 7 and 4 plant species, respectively. Comparison of the data with earlier reports showed that 12 species (Allium cepa, Artocarpus heterophyllus, Bauhinia racemosa, Bridelia retusa, Centella asiatica, Curculigo orchioides, Curcuma domestica [Curcuma longa], Desmodium triangulare [Dendrolobium triangulare], Diplocyclos palmatus, Moringa pterygosperma [Moringa oleifera], Pedalium murex and Vernonia albicans) are new reports.

Author S. Nadanakunjidam

Title Plants related to biocultural aspects of tribals of Attapadi Hills, Western Ghats.

Year 2004

Source title Advances in Plant Sciences

Reference 17(1): 31-35

Abstract

Field surveys were conducted in tribes located in the Attapadi hills, Western Ghats, Kerala, India to investigate the use of plants in religious rituals among the tribes. A total of 43 plant species belonging to 42 genera and 28 families are used in worship, rituals, recreation, arts, crafts, taboos, myths and as totems. Flowers of Aerva lanata and Artocarpus heterophyllus are used in religious ceremonies and rituals. Fruits of Terenna nilagrica are used in recreation. The use of Strychnos potatorum, Girardiana diversifolia, Delbergia lanceolaria, Mimosa pudica and Cryptolepis buchanani in taboos, myths and as totems are highlighted.

Author S. T. H. P. Bolhaar, R. v. Ree, C. A. F. M. Bruijnzeel-Koomen, A. C. Knulst and

Title Allergy to jackfruit: a novel example of Bet v 1-related food allergy.

Year 2004

Source title Allergy

Reference 59(11): 1187-1192

Abstract

Objective: To determine whether jackfruit (Artocarpus integrifolia [A. heterophyllus]) allergy is linked to birch [Betula] pollen allergy. Methods: Two jackfruit allergic patients and 5 patients with birch pollen-related apple [Malus pumila] allergy at the University Medical Center Utrecht, Netherlands, were recruited [date not given]. Sensitization to pollen and plant foods was assessed by skin prick test (SPT), radio-allergosorbent test (RAST) and immunoblot. RAST analysis was performed for Bet v 1 and Mal d 1. Cross-reactivity was evaluated by RAST and immunoblot-inhibition. Biological activity of IgE was measured by basophil histamine release. Allergy to jackfruit was evaluated by double-blind placebo-controlled food challenge (DBPCFC) or open challenge (OC). Results: In both patients, DBPCFC confirmed the reported jackfruit allergy. SPTs were 41 and 27 mm2 and specific IgE levels to jackfruit were 5.9 and 0.8 IU/ml, respectively. Immunoblot analysis revealed IgE reactivity at Mr of approximately 17 kDa. The Bet v 1-related nature of this allergen in jackfruit was demonstrated by RAST and immunoblot inhibition. To assess whether jackfruit allergy might be common in patients with combined birch pollen-fruit allergy, 5 such patients underwent an OC with jackfruit. All 5 had OA-like symptoms. Conclusions: Jackfruit allergy can be added to the list of birch pollen-related food allergies. Increased consumption of this fruit will result in an increase in allergic reactions.

Author Sudijono, W. Dwianto, Y. Sulaeman, I. Iida, Y. Furuta and K. Minato

Title Characterization of major, unused, and unvalued Indonesian wood species I. Depe

Year 2004

Source title Journal of Wood Science

Reference 50(4): 371-374

Abstract

Mechanical property changes due to the moisture content (MC) and/or temperature changes were examined for 15 Indonesian wood species. A static bending test was carried out at 20 degrees C, 65% relative humidity (air-dry), and water-saturated at 20 degrees C (wet-20) and 80 degrees C (wet-80). For individual test conditions, modulus of elasticity (MOE) and modulus of rupture (MOR) increased linearly with specific gravity regardless of wood species; however, maximum deflection did not correlate with specific gravity for any MC or temperature conditions. The relative values of MOE and MOR measured in wet-20 to air-dry conditions were variously affected from slightly to strongly depending on the wood species. However, the relative values always decreased markedly when saturated in water at 80 degrees C, regardless of wood species. The relative MOE, MOR, and maximum deflection values due to the change in MC or MC and temperature combined were independent of specific gravity but may be dependent on wood type: softwood or hardwood.

Author T. Amia, K. Fatima, S. S. Khan and T. Saify

Title Medicinal plants used in treatment of indigestion in Raigarh District of Chhattisga

Year 2004

Source title Biodiversity and sustainable utilization of biological resources

Reference T. R. Sahu and P. K. Sahu. Jodhpur India, Scientific Publishers (India). 98-104

Abstract

Ethnomedicinal survey of tribal area of Raigarh Distt. of Chhattisgarh was conducted during July 1998 to September 2000 and 24 medicinal plants were recorded which are used in indigestion. The help of Corwa, Chamar and Oraon tribes was taken. These tribals live in Kunkuri, Jashpur, Tapkara, Gharghora, Dharam-jaigarh, Kansabel and Lawakera forests of Raigarh district. Plants species which are used in the treatment of Indigestion are: Launaea asplenifolia, Ocimum sanctum [Ocimum tenuiflorum], Helicteres isora, Vigna unguiculata, Caesulia axillaris, Cyathocline purpurea, Mentha spicata, Artocarpus heterophyllus, Buchanania lanzan, Erigeron bonariensis, Grewia abutilifolia, Polycarpon indicum, Cucumis callosus, Ochna squarrosa, Alternanthera sessilis, Phyllanthus maderaspatensis, Eichhornia crassipes, Canscora diffusa, Nymphaea stellata, Kyllinga triceps, Grangea maderaspatana, Carchorus fasciculatis etc.

Author W. Qin, B. Ling, Z. Peng and M. Zhang

Title Influence of three kinds of secondary compounds of tropical plants on the diamon

Year 2004

Source title Acta Phytophylacica Sinica

Reference 31(3): 269-275

Abstract

The effects of secondary compounds from tropical plants (Artocarpus heterophyllus, Anacardium occidentale and Mimosa pudica) on the diamondback moth (Plutella xylostella) were investigated. The deterrent effects of Artocarpus heterophyllus and Anacardium occidentale were better than those of M. pudica. Oviposition deterrence and antifeedant effects were observed in all extracts, and the effect was strong with high volatile composition, but this decreased over time. The best deterrent effect was observed with extracts from Artocarpus heterophyllus. Increasing concentrations resulted to the increase in deterrent effect. M. pudica, Artocarpus heterophylla and Anacardium occidentale extracts at 0.025 mg/litre showed an oviposition deterrent rate of 89.58, 73.68 and 72.46%, and antifeedant rates of 69.46, 76.38 and 72.54%, respectively. The oviposition deterrent effect was reduced with time. Anacardium occidentale extracts showed continuous oviposition deterrent effect.

Author Amadeo, G. I., R. Moreira, R. Lima, D. Teixeira, R. Kratje and M. Etcheverrigara

Title Screening of lectins from south american plants used as affinity ligands to purify r

Year 2003

Source title Brazilian Journal of Chemical Engineering

Reference 20(1): 21-26

Abstract

Two groups of isoforms of rhEPO, at a concentration of 300 mug/ml, were tested as putative inhibitors of the lectinic hemagglutination reaction in order to obtain affinity ligand(s) for hormone purification: groups I (pl: 3.80; 3.89; 3.95; 4.07, 4.15 and 4.26) and groups II (pl: 4.15, 4.26; 4.38; 4.51; 4.72 and 4.93) Crude extracts from the vegetable materials Abrus precatorious (Abrin), Artocarpus incisa (Frutalin), Artocarpus integrifolia (Jacalin), Canavalia ensiformes (ConA), Canavalia brasiliensis (Conbr), Cratylia floribunda, Dioclea altissima (DAL),. Dioclea grandiflora (DGL), Erythrina vellutina (EVL), Erythrina cristagalli, Lutaelburgia auriculata (lectin not fully characterized yet), Lycopersicum esculentum (LEA), Phaseolus vulgaris (PHA), Ricinus communis (Ricin) and Triticum vulgaris (WGA) were used. Only some of the galactose specific lectins and the GlcNAc-specific lectins showed rapid full inhibition of the hemagglutination reaction for the less acidic isoforms and the total isoforms of rhEPO, respectively. On this basis, the selected lectins were purified by affinity chromatoghraphy and covalently coupled to cyanogen bromide activated Sepharose((R)) (Amershain-Pharmacia). CHO.K1 cell culture supernatant containing rhEPO was loaded onto the lectin resins and the recoveries were calculated by using specific elutions.

Author Augustus, G. D. P. S., M. Jayabalan and G. J. Seiler

Title Alternative energy sources from plants of western Ghats (Tamil Nadu, India)

Year 2003

Source title Biomass and Bioenergy

Reference 24(6): 437-444

Abstract

Twenty-two taxa of Western Ghats plants were screened as potential, alternative crops for renewable energy, oil, hydrocarbon and phytochemicals. The highest hydrocarbon yields were observed in Carissa carandas (1.7%), and Jatropha gossypifolia (1.7%). The highest polyphenol fraction was observed in Dodonaea viscosa (17.1%), Carissa carandas (7.7%), Swietenia mahagoni (6.6%), and Jatropha glandulifera (6.2%). The highest oil content was observed in Aganosma cymosa (10.3%), Carissa carandas (5.8%), and Argemone mexicana (5.0%). Swietenia mahagoni yielded the highest protein content with 8.1%. The gross heat value of 4175.0 cal/g(17.5 MJ/kg) for Lochnera rosea (pink flowered var.), and 4112.0 cal/g for Dalbergia sissoo were the highest among the species analysed. NMR spectra of the hydrocarbon fractions of Alstonia scholaris, Carissa carandas, Ichnocarpus frutescens, Plumeria rubra, Thevetia nerfifolia (white flowered var.), Vallaris solanacea, Lochnera rosea (pink flowered var.), Euphorbia hirta, E. splendens, Artocarpus integrifolia and Ficus religiosa revealed the presence of cis-polyisoprene (natural rubber), whereas Argemone mexicana showed the presence of trans-polyisoprene (gutta). Several new crop species were identified with potentially useful compounds. The potential exists for growing these alternate crops in areas of underutilized lands, subsequently stimulating industrial and economic growth. Published by Elsevier Science Ltd.

Author Cao, S., M. S. Butler and A. D. Buss

Title Flavonoids from Artocarpus lanceifolius

Year 2003

Source title Natural Product Research

Reference 17(2): 79-82

Abstract

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Author Chan, S. C., H. H. Ko and C. N. Lin

Title New prenylflavonoids from Artocarpus communis

Year 2003

Source title Journal of Natural Products

Reference 66(3): 427-430

Abstract

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Author Li, Y., S. d. Li and J. Chen

Title Analysis on trace elements in Artocarpus heterophyllus Lam

Year 2003

Source title Guangdong Weiliang Yuansu Kexue

Reference 10(1): 57-59

Abstract

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Author O. Duarte, H. Suchini and H. Castaneda

Title Studies on vegetative propagation and the effect of indolebutyric acid on sexual pr

Year 2003

Source title Proceedings of the Interamerican Society for Tropical Horticulture

Reference 46(65-67

Abstract

This paper presents the results of studies evaluating the most effective method of vegetative propagation (use of air layers, cuttings and grafting) of tamarind (T. indica), the most suitable time to perform air layering, as well as the effect of indolylbutyric acid and gibberellic acid on the rooting, germination and growth of tamarind.

Author Roder, W., Rinzin and T. Gyeltshen

Title Ficus auriculata - its relative importance in Bhutan, farmers' preference and fodder

Year 2003

Source title Agroforestry Systems

Reference 57(1): 10-16

Abstract

Tree leaves are important traditional fodder sources in many parts of the Himalaya, particularly during the dry winter season. Households interviewed in different regions of Bhutan used 1-13 different tree species for fodder, with Ficus auriculata standing out as the preferred and most widely used species across a range of conditions. It is preferred because of the wide range of adaptation, good nutritional qualities and palatability, and its good productivity. Ficus auriculata is also an important tree fodder in the Himalayan region of Nepal and India. Its fodder quality is far superior to paddy straw, the main winter fodder in the rice growing regions of the Himalayas. Parameters recorded in the literature for crude protein, neutral detergent fibre and acid detergent fiber are 9.5-17.3, 46.2-58.4 and 36.1-45.8%, respectively. Farmers consider it to be better than rice straw and the fodder from the tree fodder species Celtis tetrandra, Brassaiopsis hainla, Stereospermum suaveolens, Bauhinia purpurea and Litsea polyantha. Average annual fresh yield per tree was reported as 200, 120, 112, 108, 108 and 96 kg for F. auriculata, Artocarpus lakoocha, Gmelina arborea, F. cunia, Litsea monopetala and Stereospermum suaveolens, respectively. Considering the current importance of F. auriculata it is imperative to carry out research exploring its potential in evolving production systems and to quantify the opportunities of improving its nutritional quality and productivity through selection.

Author Rouge, P., W. J. Peumans, A. Barre and E. J. M. Van Damme

Title A structural basis for the difference in specificity between the two jacalin-related l

Year 2003

Source title Biochemical and Biophysical Research Communications

Reference 304(1): 91-97

Abstract

The activity and specificity of a galactose-specific and a mannose-specific jacalin-related lectin from the bark of the black mulberry (Morus nigra) tree has been re-investigated using different experimental approaches. Both lectins definitely behave as polyspecific lectins recognizing galactose, mannose, and glucose even though MornigaG and MornigaM interact preferentially with galactose and mannose, respectively. The exceptionally extended size of the carbohydrate-binding site of both lectins apparently accounts for their polyspecific character. Parallel studies with other mannose-specific jacalin-related lectins confirmed that their exclusive specificity towards mannose/glucose relies on a reduced size of their carbohydrate-binding site. (C) 2003 Elsevier Science (USA). All rights reserved.

Author Seo, E. K., D. Lee, Y. G. Shin, H. B. Chai, H. A. Navarro, L. B. S. Kardono, I. Ra

Title Bioactive prenylated flavonoids from the stem bark of Artocarpus kemando

Year 2003

Source title Archives of Pharmacal Research

Reference 26(2): 124-127

Abstract

Four known prenylated flavonoids, artonins E (1) and 0 (2), artobiloxanthone (3), and cycloartobiloxanthone (4), were isolated from the stem bark of Artocarpus kemando by bioassay-guided fractionation using the DNA strand-scission and the KB cytotoxicity assays as monitors. Compounds I and 3 exhibited strong DNA strand-scission activity, and all four compounds were found to be cytotoxic.

Author Tateno, H., H. C. Winter, J. Petryniak and I. J. Goldstein

Title Purification, characterization, molecular cloning, and expression of novel member

Year 2003

Source title Journal of Biological Chemistry

Reference 278(13): 10891-10899

Abstract

A lectin was purified from rhizomes of the fern Phlebodium aureum by affinity chromatography on mannose-Sepharose. The lectin, designated P. aureum lectin (PAL), is composed of two identical subunits of similar to15 kDa associated by noncovalent bonds. From a cDNA library and synthetic oligonucleotide probes based on a partial amino acid sequence, 5'- and 3'-rapid amplification of cDNA ends allowed the generation of two similar full-length cDNAs, termed PALa and PALb, each of which had an open reading frame of 438 by encoding 146 amino acid residues. The two proteins share 88% sequence identity and showed structural similarity to jacalin-related lectins. PALa contained peptide sequences exactly matching those found in the isolated lectin. PALa and PALb were expressed in Escherichia coli using pET-22b(+) vector and purified by one-step affinity chromatography. Native and recombinant forms of PAL agglutinated rabbit erythrocytes and precipitated with yeast mannan, dextran, and the high mannose-containing glycoprotein invertase. The detailed carbohydrate-binding properties of the native and recombinant lectins were elucidated by agglutination inhibition assay, and native lectin was also studied by isothermal titration calorimetry. Based on the results of these assays, we conclude that this primitive vascular plant, like many higher plants, contains significant quantities of a mannose/glucose-binding protein in its storage tissue, whose binding specificity differs in detail from either legume mannose/glucose-binding lectins or monocot mannose-specific lectins. The identification of a jacalin-related lectin in a true fern reveals for the first time the widespread distribution and molecular evolution of this lectin family in the plant kingdom.

Author Wu, A. M., J. H. Wu, L. H. Lin, S. H. Lin and J. H. Liu

Title Binding profile of Artocarpus integrifolia agglutinin (jacalin)

Year 2003

Source title Life Sciences

Reference 72(20): 2285-2302

Abstract

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Author Astoul, C. H., W. J. Peumans, E. J. M. van Damme, A. Barre, Y. Bourne and P. R

Title The size, shape and specificity of the sugar-binding site of the jacalin-related lecti

Year 2002

Source title Biochemical Journal

Reference 367(Nov): 817-824

Abstract

Mannose-specific lectins with high sequence similarity to jacalin and the Maclura pomifera agglutinin have been isolated from species belonging to the families Moraceae, Convolvulaceae, Brassicaceae, Asteraceae, Poaceae and Musaceae. Although these novel mannose-specific lectins are undoubtedly related to the galactose-specific Moraceae lectins there are several important differences. Apart from the obvious differences in specificity, the mannose- and galactose-specific jacalin-related lectins differ in what concerns their biosynthesis and processing, intracellular location and degree of oligomerization of the protomers. Taking into consideration that the mannose-specific lectins are widely distributed in higher plants, whereas their galactose-specific counterparts are confined to a subgroup of the Moraceae sp. one can reasonably assume that the galactose-specific Moraceae lectins are a small-side group of the main family. The major change that took place in the structure of the binding site of the diverging Moraceae lectins concerns a proteolytic cleavage close to the N-terminus of the protomer. To corroborate the impact of this change, the specificity of jacalin was re-investigated using surface plasmon resonance analysis. This approach revealed that in addition to galactose and N-acetylgalactosamine, the carbohydrate-binding specificity of jacalin extends to mannose, glucose, N-acetylmuramic acid and N-acetylneuraminic acid. Owing to this broad carbohydrate-binding specificity, jacalin is capable of recognizing complex glycans from plant pathogens or predators.

Author Atuahene, C. C., A. Donkoh, D. M. Anang and J. Boateng

Title A note on the use of breadfruit meal (Artocarpus incisus) as a feed ingredient for

Year 2002

Source title Journal of Animal and Feed Sciences

Reference 11(2): 321-330

Abstract

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Author Ayodele MS; Oginni EO

Title Utilization of breadfruit (Artocarpus incisa) flour for confectionery products

Year 2002

Source title Tropical Science

Reference 42(3): 120-122

Abstract

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Author Bourne, Y., C. H. Astoul, V. Zamboni, W. J. Peumans, L. Menu-Bouaouiche, E. J.

Title Structural basis for the unusual carbohydrate-binding specificity of jacalin toward

Year 2002

Source title Biochemical Journal

Reference 364(May): 173-180

Abstract

Evidence is presented that the specificity of jacalin, the seed lectin from jack fruit (Artocarpus integrifolia), is not directed exclusively against the T-antigen disaccharide Galbeta1, 3GalNAc, lactose and galactose, but also against mannose and oligomannosides. Biochemical analyses based on surface-plasmon-resonance measurements, combined with the X-ray-crystallographic determination of the structure of a jacalin alpha-methyl-mannose complex at 2 Angstrom resolution, demonstrated clearly that jacalin is fully capable of binding mannose. Besides mannose, jacalin also interacts readily with glucose, N-acetylneuraminic acid and N-acetylmuramic acid. Structural analyses demonstrated that the relatively large size of the carbohydrate-binding site enables jacalin to accommodate monosaccharides with different hydroxyl conformations and provided unambiguous evidence that the beta-prism structure of jacalin is a sufficiently flexible structural scaffold to confer different carbohydrate-binding specificities to a single lectin.

Author Campana, P. T., D. I. Moraes, A. C. O. Monteiro-Moreira and L. M. Beltramini

Title Unfolding and refolding studies of frutalin, a tetrameric d-galactose binding lectin

Year 2002

Source title European Journal of Biochemistry

Reference 269(3): 753-758

Abstract

Protein refolding is currently a fundamental problem in biophysics and molecular biology. We have studied the refolding process of frutalin, a tetrameric lectin that presents structural homology with jacalin but shows a more marked biological activity. The initial state in our refolding puzzle was that proteins were unfolded after thermal denaturation or denaturation induced by guanidine hydrochloride, and under both conditions, frutalin was refolded. The denaturation curves, measured by fluorescence emission, gave values of conformational stability of 17.12 kJ.mol(-1) and 12.34 kJ.mol(-1). in the presence and absence of D-galactose, respectively. Native, unfolded, refolded frutalin and a distinct molecular form denoted misfolded, were separated by size-exclusion chromatography (SEC) on Superdex 75. The native and unfolded samples together with the fractions separated by SEC were also analyzed for heamagglutination activity by CD and fluorescence spectroscopy. The secondary structure content of refolded frutalin estimated from the CD spectra was found to be close to that of the native molecule. All the results obtained confirmed the successful refolding of the protein and suggested a nucleation-condensation mechanism, whereby the sugar-binding site acts as a nucleus to initiate the refolding process. The refolded monomers, after adopting their native three-dimensional structures, spontaneously assemble to form tetramers.

Author Cestari, A. R., E. F. S. Vieira, A. J. P. Nascimento, M. M. Santos and C. Airoldi

Title Factorial design evaluation of some experimental factors for phenols oxidation usi

Year 2002

Source title Journal of the Brazilian Chemical Society

Reference 13(2): 260-265

Abstract

This study presents some additional information on the alternative utilization of Jackfruit crude extracts in selective phenol oxidation reactions, using catechol and the o-, m- e p- cresols and pyrogallol substracts. The effects of pH, concentration of phosphate buffer and kinds of natural phenol extractors are evaluated. By using the conventional univariate procedure, the best enzymatic activities were obtained with the catechol substract, phosphate buffer (pH 5.0) at a concentration 0.10 mol L-1, and the commercial polymer Polyclar SB-100(R) as natural phenol extractor. Using a full 2 3 factorial design the best catalytic results were obtained by employing phosphate buffer at pH 5.0 and it 0.050 mol L-1. However, the kind of phenol extractor was not statistically important. The best results for selective catechol oxidation were obtained by using the multivariate technique. In this way, the multivariate methodology is indicated to increase the performance of the crude extract in the selective oxidation reactions.

Author Ersam, T., S. A. Achmad, E. L. Ghisalberti, E. H. Hakim, L. Makmur and Y. M. S

Title A new isoprenylated chalcone, artoindonesianin j, from the root and tree bark of

Year 2002

Source title Journal of Chemical Research-S

Reference (4): 186-187

Abstract

A new prenylated chalcone artoindonesianin J, the structure of which was determined on the basis of spectroscopic evidence, was isolated from the root and tree bark of Artocarpus bracteata Hook, together with three known flavonoids, kanzonol, 6-(3-methylbut-2-enyl)-apigenin and carpachromene.

Author Gaikwad, S. M., M. M. Gurjar and M. I. Khan

Title Artocarpus hirsuta lectin - differential modes of chemical and thermal denaturatio

Year 2002

Source title European Journal of Biochemistry

Reference 269(5): 1413-1417

Abstract

Unfolding, inactivation and dissociation of the lectin from Artocarpus hirsuta seeds were studied by chemical (guanidine hydrochloride, GdnHCl) and thermal denaturation. Conformational transitions were monitored by intrinsic fluorescence and circular dichroism. The gradual red shift in the emission maxima of the native protein from 335 to 356 nm, change in the ellipticity at 218 nm and simultaneous decrease in the sugar binding activity were observed with increasing concentration of GdnHCl in the pH range between 4.0 and 9.0. The unfolding and inactivation by GdnHCl were partially reversible. Gel filtration of the lectin in presence of 1-6 M GdnHCl showed that the protein dissociates reversibly into partially unfolded dimer and then irreversibly into unfolded inactive monomer. Thermal denaturation was irreversible. The lectin loses activity rapidly above 45 degreesC. The exposure of hydrophobic patches, distorted secondary structure and formation of insoluble aggregates of the thermally inactivated protein probably leads to the irreversible denaturation.

Author Hakim, E. H., Asnizar, Yurnawilis, N. Aimi, M. Kitajima and H. Takayama

Title Artoindonesianin p, a new prenylated flavone with cytotoxic activity from Artocar

Year 2002

Source title Fitoterapia

Reference 73(7-8): 668-673

Abstract

A new prenylated flavone, named artoindonesianin P (1), was isolated from the tree bark of Artocarpus lanceifolius, together with three known related compounds, artobiloxanthone (2), cycloartobiloxanthone (3) and artonol B (4). The structure of artoindonesianin P I was determined on the basis of spectral evidence (MS, H-1 and C-13 NMR) and by comparison with known related compounds. Compounds 1-4 exhibited significant cytotoxicity against murine P388 leukemia cells.

Author Hakim, E. H., U. Z. Ulinnuha, Y. M. Syah and E. L. Ghisalberti

Title Artoindonesianins n and o, new prenylated stilbene and prenylated arylbenzofuran

Year 2002

Source title Fitoterapia

Reference 73(7-8): 597-603

Abstract

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Author Hossain, M. K., M. A. H. Dhali and M. S. Hossain

Title Effects of forest soil and leaf-litter on germination and initial seedling growth of L

Year 2002

Source title Allelopathy Journal

Reference 10(1): 13-19

Abstract

This study determined the effects of forest topsoil + leaf-litter mixture of four common plantation tree species (Acacia auriculiformis, Artocarpus chaplasha, Dipterocarpus turbinatus and Eucalyptus camaldulensis) on the germination and initial seedling growth of Leucaena leucocephala. The topsoil of adjacent bushy scrub forest area served as control. Highest germination occurred in the topsoil + leaf-litter mixture (90: 10) of Dipterocarpus turbinatus, whereas, the topsoil + leaf-litter mixture of Acacia auriculiformis caused maximum stimulation in the seedling growth and biomass production in L. leucocephala. Mixtures of topsoil + leaf-litter mixture (50:50) of Eucalyptus camaldulensis caused greatest inhibition in germination and seedling growth of L. leucocephala. These results demonstrated the allelopathic effects of E. camaldulensis leaf-litter on L. leucocephala.

Author Hu, B. Y., W. W. Hsiao and C. H. Fu

Title First report of zonate leaf spot of Artocarpus altilis caused by Cristulariella moric

Year 2002

Source title Plant Disease

Reference 86(10): 1179

Abstract

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Author J. A. Salazar-Montoya, E. G. Ramos-Ramirez and V. A. Delgado-Reyes

Title Changes of the dynamic properties of tamarind (Tamarindus indica) gel with diffe

Year 2002

Source title Carbohydrate Polymers

Reference 49(4): 387-391

Abstract

The dynamic properties (storage moduli, G' and loss moduli, G") of tamarind gels and the influence of saccharose and polysaccharide concentrations were studied using model rings of 3 mm thickness and 20 mm diameter, prepared with three saccharose (55, 60 and 65% w/v) and three polysaccharide concentrations (1.5, 2.0 and 2.5% w/v). Small amplitude oscillatory measures were taken at 25 deg C in a PHYSICA LS 100 rheometer with parallel plate geometry. Results for the 9 gels showed the zone of linear viscoelasticity between 0.637 and 6.37 Pa of oscillatory shear stress. The mechanical spectra obtained after 24, 48 and 72 h evidenced the presence of syneresis with an increase in G' as a function of time. The effects of polysaccharide concentrations on gel viscoelasticity were greater than those of saccharose

Author Jeyaprakash, A. A., P. G. Rani, G. B. Reddy, S. Banumathi, C. Betzel, K. Sekar, A

Title Crystal structure of the jacalin-t-antigen complex and a comparative study of lecti

Year 2002

Source title Journal of Molecular Biology

Reference 321(4): 637-645

Abstract

Thomsen-Friedenreich antigen (Galbeta1-3GalNAc), generally known as T-antigen, is expressed in more than 85% of human carcinomas. Therefore, proteins which specifically bind T-antigen have potential diagnostic value. Jacalin, a lectin from jack fruit (Artocarpus integrifolia) seeds, is a tetramer of molecular mass 66 kDa. It is one of the very few proteins which are known to bind T-antigen. The crystal structure of the jacalin-T-antigen complex has been determined at 1.62 Angstrom resolution. The interactions of the disaccharide at the binding site are predominantly through the GalNAc moiety, with Gal interacting only through water molecules. They include a hydrogen bond between the anomeric oxygen of GalNAc and the pi electrons of an aromatic side-chain. Several intermolecular interactions involving the bound carbohydrate contribute to the stability of the crystal structure. The present structure, along with that of the Me-alpha-Gal complex, provides a reasonable qualitative explanation for the known affinities of jacalin to different carbohydrate ligands and a plausible model of the binding of the lectin to T-antigen O-linked to seryl or threonyl residues. Including the present one, the structures of five lectin-T-antigen complexes are available. GalNAc occupies the primary binding site in three of them, while Gal occupies the site in two. The choice appears to be related to the ability of the lectin to bind sialylated sugars. In either case, most of the lectin-disaccharide interactions are at the primary binding site. The conformation of T-antigen in the five complexes is nearly the same. (C) 2002 Elsevier Science Ltd. All rights reserved.

Author K. Ilango and C. Vijayalakshmi

Title Effect on growth regulators and chemicals on pod set and retention in Tamarind (

Year 2002

Source title Myforest

Reference 38(2): 133-137

Abstract

An experiment was conducted to evaluate the effectiveness of foliar spray of cycocel (1500 ppm), Ethrel (500 ppm), Triacontanol (20 ml tree-1), IBA (150 ppm), planofix (100 ppm), Micronutrient mixture (0.5%), ZnSO4 (0.5%)+Boric acid (0.3%)+FeSO4 (0.5%) and Urea (1.5%) on flowering, pod set and retention of Tamarind during 1999-2000 under black cotton soils at Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu. All the treatments with growth regulators and chemicals exhibited significant effects on flowering, pod set and retention. Treatment with foliar feeding urea resulted in maximum number of flowering (75.66) and cycocel resulted in maximum pod set (32.27%) and retention (54.66%) per unit area. Number of flowers and pod set was significantly influenced by levels of canopy but not pod retention

Author Lu, Y. H., C. N. Lin, H. H. Ko, S. Z. Yang, L. T. Tsao and J. P. Wang

Title Two novel and anti-inflammatory constituents of Artocarpus rigida

Year 2002

Source title Helvetica Chimica Acta

Reference 85(6): 1626-1632

Abstract

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Author Mecklenburg, M., J. Svitel, F. Winquist, J. Gang, K. Ornstein, E. Dey, X. Bin, E.

Title Differentiation of human serum samples by surface plasmon resonance monitorin

Year 2002

Source title Analytica Chimica Acta

Reference 459(1): 25-31

Abstract

Bacterial infection and inflammation result in massive changes in serum glycoproteins. These changes were investigated by the interaction of the saccharide glycoprotein moiety with lectins. A panel of eight lectins (Canavalia ensiformis, Bandeiraea simplicifolia BS-I, Arachis hypogaea, Phytolacca americana, Phaseolus vulgaris, Artocarpus integrifolia, Triticum vulgaris and Pisum sativum) was used to differentiate human serum glycoproteins obtained from patients with various bacterial infections. Lectin functionalised sensing layers were created on gold-coated wafers and lectin-glycoprotein interactions were monitored by surface plasmon resonance. The interaction of the lectin panel with serum glycoproteins produces unique patterns. Principal component analysis (PCA) was used to analyse the patterns. The actual panel of eight lectins enabled discrimination between sera obtained from patients sick with bacterial infection and healthy patients. Extended lectin panels have the potential to distinguish between types of bacterial infection and identify specific disease state.

Author Meshram, P. U., M. N. Gourkar, D. S. Ramteke and P. V. Patil

Title Evaluation of Artocarpus heterophylluse bark for scavenging lead and chromium

Year 2002

Source title Pollution Research

Reference 21(4): 439-442

Abstract

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Author Mui, N. T. M., I. Ledin, P. Uden and D. Van Binh

Title Nitrogen balance in goats fed flemingia (Flemingia macrophylla) and jackfruit (Ar

Year 2002

Source title Asian Australasian Journal of Animal Sciences

Reference 15(5): 699-707

Abstract

Diets with foliage of Flemingia (Flemingia macrophylla) or Jackfruit (Artocapus heterophyllus were fed to goats with the objective to study nitrogen (N) balance and effect of a daily supplementation of polyethylene glycol (PEG) on intake and digestion. In experiment 1, three male AlpinexJamnapary goats with initial weights varying from 26.9 to 27.7 kg were used in a 3x3 Latin square design in the dry season. Three AlpinexBachthao crosses, 15.3-16.7 kg, were used in the same design in the wet season. The three diets were based on chopped whole sugar cane complemented with the two green foliages, Jackfruit and Flemingia, or soybean meal (SBM). The level of dry matter (DM) offered was 4% of body weight (BW), 2.7% as foliage and 1.3% as chopped whole sugar cane. The amount of SBM offered was calculated to give the same amount of crude protein (CP) as the foliages. Each experimental period lasted 32 days (14 days for adaptation, 7 days for collection and 10 days for rest). Feed intake, apparent digestibility of DM, organic matter (OM), CP, neutral detergent fiber (NDF) and acid detergent fiber (ADF) and retained nitrogen (N) were measured by total faccal and urine collection. In experiment 2, four male goats (AlpinexJanmapary) with initial weights from 17.1 to 23.1 kg were used in a 4x4 Latin square design. The four treatments were Jackfruit or Flemingia with or without addition of PEG, which was fed at a level of 5 g/goat and day by mixing with a small amount of rice bran. Each experimental period lasted 15 days (8 days for adaptation, 7 days for collection). Measurements were done as in experiment 1. The DM digestibility was highest (65.9-74.3%) for goats fed the SBM diet in both the dry and wet season. The DM digestibility of goats fed the Jackfruit and the Flemingia diets was similar in both the dry (58.6-59.2% respectively) and the wet season (53.9-56.1% respectively). The CP digestibility was highest (73.0-73.6%) for the SBM diet followed by the Jackfruit diet (47.0-38.5%) and was lowest (36.8-30.0%) for the Flemingia diet in both dry and wet seasons, respectively. The NDF digestibility was low for both the Jackfruit (36.4%) and Flemingia (38.0%) diets in the wet season. All diets resulted in a positive N balance. The N retention was highest (0.465-0.604 g/kg W-0.75) in the SBM diets and lowest (0.012-0.250 g/kg W-0.75) in the Flemingia diet. Addition of PEG had no effect on feed intake for any of the diets. PEG added in the Flemingia diet had a positive effect only on NDF digestibility, but the digestibility of the Jackfruit diet was significantly increased. Supplementation with PEG reduced digestibility and N retention of Flemingia, possibly because of the low tannin level, but increased digestibility and N retention for Jackfruit foliage.

Author Mui, N. T., I. Ledin, P. Uden and D. Van Binh

Title The foliage of flemingia (Flemingia macrophylla) or jackfruit (Artocarpus heterop

Year 2002

Source title Asian Australasian Journal of Animal Sciences

Reference 15(1): 45-54

Abstract

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Author N. D. Singh and A. Arunachalam

Title Effect of pre-sowing treatments and seed size on germination in five leguminous t

Year 2002

Source title Range Management & Agroforestry

Reference 23(2): 139-143

Abstract

The effect of pre-sowing treatments on seed germination of five leguminous tree species, viz., Albizia arunachalensis, Tamarindus indica, Cassia fistula, Samanea saman and Delonix regia, were studied using mechanical scarification, sulfuric acid treatments (5, 10 and 15 minutes) and dry heat treatments at 60, 80 and 100 deg C (15, 30 and 60 minutes). The seeds of the five species were collected from a 25-year old social forestry experimental plot in Arunachal Pradesh, India. Seeds were classified into three seed weight classes (large, medium and small) on the basis of seed size range and weight. Results showed that germination percentage varied among treatments, seed sizes and species. Seeds treated with sulfuric acid gave better germination. Germination was higher at 60 deg C dry heat incubation compared to 80 and 100 deg C exposures. The dry heat treatment improved germination of A. arunachalensis and D. regia. However, in T. indica, the rate of germination was reduced by the dry heat treatments when compared to the scarification treatments. Acid and dry heat treatments gave better germination results in most of the species studied. A significant positive correlation between seed size and germination rate with respect to control treatment indicated that greater initial reserves within seeds perform a greater role in early g e r m i n a t i o n

Author Nakamura, S., A. Ikegami, Y. Matsumura, T. Nakanishi and K. Nomura

Title Molecular cloning and expression of the mannose/glucose specific lectin from cas

Year 2002

Source title Journal of Biochemistry

Reference 131(2): 241-246

Abstract

cDNA clones encoding a mannose/glucose specific lectin, CCA, from Castanea crenata cotyledons have been isolated and sequenced. The cloned CCA cDNA had an open reading frame of 927 bp encoding 309 amino acid residues. Compared with the amino acid sequence determined for the protein chemically, it was clarified that CCA has no signal peptide and undergoes no proteolytic cleavage as do other mannose specific Jacalin-related lectins. The coding region of CCA was introduced into an expression vector, pET22b(+), and then transferred into Escherichia coli BL21(DE3). Although recombinant CCA (rCCA) accumulated as inclusion bodies, refolded rCCA exhibited a similar CD spectrum to nCCA and regained the hemagglutination activity. In addition, a hapten inhibition assay revealed that nCCA and rCCA showed the same specificities toward sugars and glycoproteins. On measurement by GPC-MALLS in the native state, the absolute molecular mass of nCCA was found to be 332 +/- 7 kDa, which indicated that nCCA is a decamer of identical subunits having a molecular mass of 33 kDa. The same as the natural molecule, rCCA showed a molecular mass of 320 +/- 5 kDa and was judged to also be a decamer. These results indicate that the rCCA obtained in this study is equivalent to nCCA.

Author Patil, A. D., A. J. Freyer, L. Killmer, P. Offen, P. B. Taylor, B. J. Votta and R. K.

Title A new dimeric dihydrochalcone and a new prenylated flavone from the bud cover

Year 2002

Source title Journal of Natural Products

Reference 65(4): 624-627

Abstract

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Author Pontes, P. V., R. F. A. Moreira, L. C. Trugo and C. A. B. De Maria

Title The content of chlorogenic acids in tropical fruits

Year 2002

Source title Journal of the Science of Food and Agriculture

Reference 82(10): 1177-1181

Abstract

This work investigates the content of feruloylquinic (FQA), caffeoylquinic (CQA) and dicaffeoylquinic (diCQA) acids in the peel, pulp and seed of 22 tropical fruits from Brazil. 3-CQA, 4,5-diCQA and 4- and 5-FQA were not detected in any of the fruits analysed. Relatively small amounts of 4-CQA (4.0-48.7 mg kg(-1)) were found in the peel and/or pulp of seven of the fruits; only the peel of Artocarpus heterophyllus was significantly ($p < 0.05$) richer in this acid (1000mg kg(-1)). The distribution of 3,4- and 3,5-diCQA in different parts of the fruits was relatively poor, only reaching levels of up to 16.4mg kg(-1). The peel of A heterophyllus also showed the highest amount of 5-CQA (13 000mg kg(-1)), while the seed of most fruits generally contained a lower amount of this acid than the peel or pulp. On the basis of the 5-CQA content found in the pulp, 15 of the fruits were classified as follows: very low concentration (4.4-15.8 mgkg(-1)), low concentration (28.9-66.4 mgkg(-1)), medium concentration (132 mgkg(-1)), high concentration (473-474 mgkg(-1)) or very high concentration (1730 mgkg(-1)); however, no 5-CQA was detected in the pulp of the other seven fruits. Thus 5-CQA was the major chlorogenic acid present in most of the tropical fruits studied and was generally accompanied by small amounts of 4-CQA and 3,4- and 3,5-diCQA. - (C) 2002 Society of Chemical Industry.

Author Prasad, K. and D. J. Bhat

Title Speiropsis rogergoosensis sp nov from India

Year 2002

Source title Mycotaxon

Reference 82(Apr-Jun): 127-131

Abstract

A new dematiaceous hyphomycete, Speiropsis rogergoosensis, producing unicellular conidia connected by narrow isthmi in profusely branched chains on polyblastic discrete conidiogenous cells, recovered from decaying leaves of Artocarpus hirsutus Lam, (Moraceae) is described from the forests of Western Ghats in southern India.

Author Pratap, J. V., A. A. Jeyaprakash, P. G. Rani, K. Sekar, A. Surolia and M. Vijayan

Title Crystal structures of artocarpin, a moraceae lectin with mannose specificity, and it

Year 2002

Source title Journal of Molecular Biology

Reference 317(2): 237-247

Abstract

The seeds of jack fruit (Artocarpus integrifolia) contain two tetrameric lectins, jacalin and artocarpin. Jacalin was the first lectin found to exhibit the beta-prism I fold, which is characteristic of the Moraceae plant lectin family. Jacalin contains two polypeptide chains produced by a post-trans, lational proteolysis which has been shown to be crucial for generating its specificity for galactose. Artocarpin is a single chain protein with considerable sequence similarity with jacalin. It, however, exhibits many properties different from those of jacalin. In particular, it is specific to mannose. The structures of two crystal forms, form I and form II, of the native lectin have been determined at 2.4 and 2.5 Angstrom resolution, respectively. The structure of the lectin complexed with methyl-alpha-mannose, has also been determined at 2.9 Angstrom resolution. The structure is similar to jacalin, although differences exist in details. The crystal structures and detailed modelling studies indicate that the following differences between the carbohydrate binding sites of artocarpin and jacalin are responsible for the difference in the specificities of the two lectins. Firstly, artocarpin does not contain, unlike jacalin, an N terminus generated by post-translational proteolysis. Secondly, there is no aromatic residue in the binding site of artocarpin whereas there are four in that of jacalin. A comparison with similar lectins of known structures or sequences, suggests that, in general, stacking interactions with aromatic residues are important for the binding Of galactose while such interactions are usually absent in the carbohydrate binding sites of mannose-specific lectins with the P-prism I fold. (C) 2002 Elsevier Science Ltd.

Author R. M. Marathe, U. S. Annapure, R. S. Singhal and P. R. Kulkarni

Title Gelling behaviour of polyose from tamarind kernel polysaccharide.

Year 2002

Source title Food Hydrocolloids

Reference 16(5): 423-426

Abstract

Polyose was isolated from tamarind kernel powder (TKP) in 50% yield by alcohol extraction of an acidified boiled aqueous extract, which was subsequently dried and pulverised. The gelling behaviour of polyose vis-a-vis pectin, and its blends with pectin was studied in a 65 deg Brix sucrose solute as a function of pH and concentration. One percent pectin gave a good firm gel, while 80:20 and 60:40 blends of pectin/polyose gave a firm gel at 1.5 and 2.0%, respectively. A 40:60, 20:80 and 0:100 blend of pectin/polyose gave a good set at 2.0%, beyond which the jellies were hard and difficult to chew. From the values of gel strength, 2% polyose from TKP was found to adequately substitute 1% pectin in ready-to-eat jelly formulations

Author Rahman, M. A., S. A. Karsani, L. Othman, P. S. A. Rahman and O. H. Hashim

Title Galactose-binding lectin from the seeds of champedak (Artocarpus integer): Sequ

Year 2002

Source title Biochemical and Biophysical Research Communications

Reference 295(4): 1007-1013

Abstract

Our group has previously reported the isolation, partial characterisation, and application of a Galbeta1-3GalNAc- and IgA1-reactive lectin from the seeds of champedak (Artocarpus integer). In the present study, we have subjected the purified lectin to reverse-phase high performance liquid chromatography and sequenced its subunits. Determination of the N-terminal sequence of the first 47 residues of the large subunit demonstrated at least 95% homology to the N-terminal sequence of the alpha chains of a few other galactose-binding Artocarpus lectins, The two smaller subunits of the lectin, each comprised of 21 amino acid residues, demonstrated minor sequence variability. Their sequences were generally comparable to the beta chains of the other galactose-binding Artocarpus lectins. When used to probe human serum glycopeptides that were separated by two-dimensional gel electrophoresis, the lectin demonstrated strong apparent interactions with glycopeptides of IgA1, hemopexin, alpha(2)-HS glycoprotein, alpha(1)-antichymotrypsin, and a few unknown glycoproteins. Immobilisation of the lectin to Sepharose generated an affinity column that may be used to isolate the O-glycosylated serum glycoproteins. (C) 2002 Elsevier Science (USA). All rights reserved.

Author Ratnasooriya, W. D. and J. R. A. C. Jayakody

Title Artocarpus heterophyllus seeds inhibits sexual competence but not fertility of mal

Year 2002

Source title Indian Journal of Experimental Biology

Reference 40(3): 304-308

Abstract

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Author S. Nagalakshmi and N. Chezhiyan

Title Packaging influences the colour of tamarind pulp during storage.

Year 2002

Source title South Indian Horticulture

Reference 50(4/6): 481-495

Abstract

The effect of different commonly used packaging materials on tamarind fruit quality was studied. Tamarind fruit pulp was prepared under different treatments: fruit pulp alone (control, A1); fruit pulp+10% sodium chloride (A2); fruit pulp+6.0% tocopherol (A3); fruit pulp+5.0% ascorbic acid (A4); fruit pulp+0.02% butylated hydroxyanisole (A5); fruit pulp+5.0% Gingelly oil (A6) and fruit pulp treated with 2.0% sulfur fumes (A7). The tamarind pulp preparations were packed in polyethylene bags of 10x15 cm size and thickness of 200 (P1), 300 (P2) and 800 (P3) gauges; polypropylene bags of 200 gauge thickness (P4); aluminium foil (P5); plastic gunny (P6); plastic container (P7); porcelain container (P8) and mud pots (P9). Darkening of the pulp was less in the higher gauge polyethylene bags. Pulp packed in the 800 gauge polyethylene bag had a lower optical density (OD, 0.2680), whereas bags of lower gauges showed higher OD values. Tamarind pulp packed using the 200 gauge polypropylene bags (P4) was darker than that packed in the 800 gauge (P3) polyethylene bags. Darkening was higher in tamarind pulp packed in the plastic gunny bag than that packed in polypropylene or polyethylene bags. The OD of the pulp packed in plastic containers was less (0.2795) than that packed in lower gauge polyethylene bags. The rate of darkening was higher in mud pots (P9)

Author S. Subramanian and S. V. Krishnamurthy

Title Outbreak of hairy caterpillar Euproctis lunata Walker on Acacia trees.

Year 2002

Source title Insect Environment

Reference 8(3): 112

Abstract

A severe outbreak of Euproctis lunata was observed during February and March 2002 on acacia trees in Thailakulam, Virudhunagar, Tamil Nadu, India. The larvae were found gregariously on acacia trees in social forestry plantations. Tamarind, nerium, chrysanthemum, moringa, and a host of weed flora served as hosts for the larval swarms. Complete defoliation was observed. The larval swarms persisted for 10-15 days in different vegetations, inflicted severe loss to rural firewood collectors, and caused nuisance to both agricultural workers and inhabitants of the village. Skin irritations due to urticaria were also reported. A wide range of control measures including flame cultivators, insecticidal dusting, and catch and eradicate strategies were adopted to control the pest

Author Selvaraj, Y., K. S. Shivashankara and T. K. Roy

Title Characterization of aroma components of jackfruit (Artocarpus heterophyllus Lam

Year 2002

Source title Indian Perfumer

Reference 46(4): 335-340

Abstract

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Author Shimizu, K., R. Kondo and K. Sakai

Title Antioxidant activity of heartwood extracts of Papua New Guinean woods

Year 2002

Source title Journal of Wood Science

Reference 48(5): 446-450

Abstract

Antioxidant effects of methanol extracts from the heartwood of 23 Papua New Guinea (PNG) wood species were examined. The extract of Amoora sp. (Meliaceae) showed the strongest antioxidant activity against lipid peroxidation in rabbit erythrocyte membrane and linoleic acid autoxidation. Also, the extract of Amoora sp. showed potent 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical-scavenging activity. These results showed that the heartwood of Amoora sp. is a possible source of antioxidative agents. The result of antioxidant activity-guided fractionation suggested that gallic acid, protocatechuic acid, and hydrolyzable tannins in the extract of Amoora sp. caused the potent antioxidant activity.

Author Shimizu, K., R. Kondo, K. Sakai, N. Takeda and T. Nagahata

Title The skin-lightening effects of artocarpin on uvb-induced pigmentation

Year 2002

Source title Planta Medica

Reference 68(1) 79-81

Abstract

This study was conducted to evaluate the effects of the prenylated flavonol artocarpin from the heartwood of Artocarpus incisus on ultraviolet (UV)-induced hyperpigmentation of guinea pig skin. An efficient lightening effect was observed following topical application of artocarpin to UV-stimulated hyperpigmented dorsal skins of brownish guinea pigs.

Author Singh, D. K.

Title Role of pre-sowing seed treatment with different chemicals on germination behavi

Year 2002

Source title Environment and Ecology

Reference 20(3): 741-743

Abstract

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Author Su, B. N., M. Cuendet, M. E. Hawthorne, L. B. S. Kardono, S. Riswan, H. H. S. F

Title Constituents of the bark and twigs of artocarpus dadah with cyclooxygenase inhib

Year 2002

Source title Journal of Natural Products

Reference 65(2): 163-169

Abstract

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Author Sudiyani, Y., S. Horisawa, K. L. Chen, S. Doi and Y. Imamura

Title Changes in surface properties of tropical wood species exposed to the indonesian

Year 2002

Source title Journal of Wood Science

Reference 48(6): 542-547

Abstract

Changes in mold populations and genera on the exposed surfaces of tropical hardwoods - albizia (Paraserianthes falcata), kapur (Dryobalanop lanceolata), mahoni (Switenia macrophylla), nangka (Artocarpus heterophyllus), puspa (Schima wallchii) - were investigated. The wood specimens were exposed to the Indonesian climate for 32 weeks. Properties including mass loss. wettability, mold growth (colony-forming units), and mold Genera were evaluated. The change in properties after exposure was significantly affected by the wood species, but there was no clear relation between mass loss and the initial chemical components or between wettability and wood density. The number of mold populations was different by exposure period and wood species, but there was no significant effect of climate conditions, such as rainfall and ultraviolet radiation. Of the genera identified, Aureobasidium, Cladosporium, and Penicillium were dominant molds on the exposed wood surfaces.

Author Syah, Y. M., S. A. Achmad, E. L. Ghisalberti, E. H. Hakim, L. Makmur and D. M

Title Artoindonesianins q-t, four isoprenylated flavones from Artocarpus champeden S

Year 2002

Source title Phytochemistry

Reference 61(8): 949-953

Abstract

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Author Theiler, R. N. and T. Compton

Title Distinct glycoprotein o complexes arise in a post-golgi compartment of cytomegal

Year 2002

Source title Journal of Virology

Reference 76(6): 2890-2898

Abstract

Human cytomegalovirus (CMV) glycoproteins H, L, and 0 (gH, gL, and gO, respectively) form a heterotrimeric disulfide-bonded complex that participates in the fusion of the viral envelope with the host cell membrane. During virus maturation, this complex undergoes a series of intracellular assembly and processing events which are not entirely defined (M. T. Huber and T. Compton, J. Virol. 73:3886-3892, 1999). Here, we demonstrate that gO does not undergo the same posttranslational processing in transfected cells as it does in infected cells. We further determined that gO is modified by O-linked glycosylation and that this terminally processed form is highly enriched in virions. However, during studies of gO processing, novel gO complexes were discovered in CMV virions. The newly identified gO complexes, including gO-gL heterodimers, were not readily detected in CMV-infected cells. Further characterization of the trafficking of gO through the secretory pathway of infected cells localized gH, gL, and gO primarily to the Golgi apparatus and trans-Golgi network, supporting the conclusion that the novel virion-associated gO complexes arise in a post-Golgi compartment of infected cells.

Author Van Damme, E. J. M., B. Hause, J. L. Hu, A. Barre, P. Rouge, P. Proost and W. J.

Title Two distinct jacalin-related lectins with a different specificity and subcellular loca

Year 2002

Source title Plant Physiology

Reference 130(2): 757-769

Abstract

Using a combination of protein isolation/characterization and molecular cloning, we have demonstrated that the bark of the black mulberry tree (Morus nigra) accumulates large quantities of a galactose-specific (MornigaG) and a mannose (Man)specific (MornigaM) jacalin-related lectin. MornigaG resembles jacalin with respect to its molecular structure, specificity, and co- and posttranslational processing indicating that it follows the secretory pathway and eventually accumulates in the vacuolar compartment. In contrast, MornigaM represents a novel type of highly active Man-specific jacalin-related lectin that is synthesized without signal peptide or other vacuolar targeting sequences, and accordingly, accumulates in the cytoplasm. The isolation and cloning, and immunocytochemical localization of MornigaG and MornigaM not only demonstrates that jacalin-related lectins act as vegetative storage proteins in bark, but also allows a detailed comparison of a vacuolar galactose-specific and a cytoplasmic Man-specific jacalin-related lectin from a single species. Moreover, the identification of MornigaM provides the first evidence, to our knowledge, that bark cells accumulate large quantities of a cytoplasmic storage protein. In addition, due to its high activity, abundance, and ease of preparation, MornigaM is of great potential value for practical applications as a tool and bioactive protein in biological and biomedical research.

Author Williams, O. J. and K. D. Golden

Title Purification and characterization of acc oxidase from Artocarpus altilis

Year 2002

Source title Plant Physiology and Biochemistry

Reference 40(4): 273-279

Abstract

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Author Worrell, D. B., C. M. S. Carrington and D. J. Huber

Title The use of low temperature and coatings to maintain storage quality of breadfruit,

Year 2002

Source title Postharvest Biology and Technology

Reference 25(1): 33-40

Abstract

Harvested, ripening breadfruit softened synchronously throughout the depth of the fruit. Postharvest life was optimally extended at 12-13 degreesC while chilling injury was evident at 7 degreesC. Peak CO2 production of fruit at ambient temperature (24-30 degreesC) was 300 ml kg(-1) h(-1), but was one fifth this value for fruit stored at 13 degreesC and occurred 5-10 days later. Peak C2H4 production was similarly delayed at 13 C, but was instead depressed eightfold. Semperfresh F, Nutri-Save, Sta-Fresh MP and chitosan coatings all retarded fruit softening, more so at ambient temperature than at 13 C. All coatings resulted in lower internal 02 concentrations and higher internal CO2 concentrations. Unlike the carbohydrate-based coatings, Sta-Fresh MP reduced water loss and markedly retarded skin browning, a cosmetic problem in refrigerated storage of breadfruit. Starch breakdown and sugar production were comparable in coated and uncoated fruit at ambient temperature, but fruit at 13 C exhibited low temperature sweetening with sugar accumulation and no accompanying starch degradation. Any advantage afforded by delayed ripening with the coatings was out-weighed by the development of off-odours and flesh discoloration in the coated fruit.

Author Wu, A. M.

Title Carbohydrate structural units in glycosphingolipids as receptors for gal and galnac

Year 2002

Source title Neurochemical Research

Reference 27(7-8): 593-600

Abstract

Glycosphingolipids (GSLs) contain many carbohydrate epitopes or crypto-glycotopes for Gal and GalNAc reactive lectins. Many of them are in the nervous system and function as important receptors in various life processes. During the past two decades, 11 mammalian structural units have been used to express the binding domain of applied lectins. They are: F, GalNAcalpha1 --> 3GalNAc; A, GalNAcalpha1 --> 3Gal; T, Galbeta1 --> 3GalNAc; I, Galbeta1 --> 3GlcNAc; II, Galbeta1 --> 4GlcNAc; B, Galalpha1 --> 3Gal; E, Galalpha1 --> 4Gal; L, Galbeta1 --> 4Glc; P, GalNAcbeta1 --> 3Gal; S, GalNAcbeta1 --> 4Gal, and Tn, GalNAcalpha1 --> Ser(Thr). Although 10 of them occur in GSLs, only 3 (L-beta, S-beta, and T-beta) are found in human brain, and 2 (L-beta and IIbeta) are present in the inner structures of human blood group active GSLs. In the families of gangliosides, L-beta and IIbeta represent 55% of the total structural units, while the other three units (T-beta, P-alpha, and S-beta) constitute the rest. To facilitate the selection of lectins that could serve as structural probes, the carbohydrate binding specificities of Gal/GalNAc reactive lectins have been classified according to their highest affinity for the structural units and their binding properties expressed by decreasing order of reactivity. Hence, the binding relation between GSLs and Gal/GalNAc specific lectins can be established.

Author Achmad SA; Hakim EH; Makmur L; Majahidin D; Juliawaty LD; Syah YM

Title Discovery of natural products from indonesian tropical rainforest plants: Chemodi

Year 2001

Source title International Conference on Biodiversity, Antalya, Turkey

Reference New York, 91-100 pp

Abstract

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Author Buchmann, K.

Title Lectins in fish skin: Do they play a role in host-monogenean interactions?

Year 2001

Source title Journal of Helminthology

Reference 75(3): 227-231

Abstract

Mucus samples from rainbow trout skin with or without infections by Gyrodactylus derjavini were tested for the presence of lectins reacting with mannose, galactose and lactose. The samples inhibited the binding of biotinylated lectins (from Canavalia ensiformis, Artocarpus integrifolia and Erythrina corallodendron, respectively) to microtitre plates with covalently bound carbohydrates (mannopyranoside, galactopyranoside and lactose, respectively). However, the inhibition of C. ensiformis and A. integrifolia lectins was slightly greater when mucus from infected (but recovering) fish was used, suggesting an increase of mannose and galactose binding lectins in fish skin exposed to parasites. As mannose, galactose and lactose are present on the glycocalyx of Gyrodactylus derjavini, it is suggested that lectins could play a dual role in interactions between fish hosts and their monogenean parasites. Thus, recognition between parasite and host and also host responses towards parasite infections could both, at least partly, involve carbohydrate-lectin binding.

Author Campana, P. T., D. I. Moraes, A. C. O. Monteiro-Moreira and L. M. Beltramini

Title Unfolding and refolding studies of frutalin, a tetrameric d-galactose binding lectin

Year 2001

Source title European Journal of Biochemistry

Reference 268(21): 5647-5652

Abstract

Protein refolding is currently a fundamental problem in biophysics and molecular biology. We have studied the refolding process of frutalin, a tetrameric lectin that presents structural homology with jacalin but shows a more marked biological activity. The initial state in our refolding puzzle was that proteins were unfolded after thermal denaturation or denaturation induced by guanidine hydrochloride, and under both conditions, frutalin was refolded. The denaturation curves, measured by fluorescence emission, gave values of conformational stability of 17.12 kJ.mol(-1) and 12.34 kJ.mol(-1), in the presence and absence of D-galactose, respectively. Native, unfolded, refolded frutalin and a distinct molecular form denoted misfolded, were separated by size-exclusion chromatography (SEC) on Superdex 75. The native and unfolded samples together with the fractions separated by SEC were also analyzed for heamagglutination activity by CD and fluorescence spectroscopy. The secondary structure content of refolded frutalin estimated from the CD spectra was found to be close to that of the native molecule. All the results obtained confirmed the successful refolding of the protein and suggested a nucleation-condensation mechanism, whereby the sugar-binding site acts as a nucleus to initiate the refolding process. The refolded monomers, after adopting their native three-dimensional structures, spontaneously assemble to form tetramers.

Author Cidade, H. M., M. S. Nacimento, M. M. M. Pinto, A. Kijjoa, A. M. S. Silva and

Title Artelastocarpin and carpelastofuran, two new flavones, and cytotoxicities of preny

Year 2001

Source title Planta Medica

Reference 67(9): 867-870

Abstract

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Author Clarke, A. R., A. Allwood, A. Chinajariyawong, R. A. I. Drew, C. Hengsawad, M.

Title Seasonal abundance and host use patterns of seven Bactrocera macquart species (

Year 2001

Source title Raffles Bulletin of Zoology

Reference 49(2): 207-220

Abstract

Based on extensive male trapping, information is presented on the distribution and seasonal abundance of six Bactrocera species in Thailand and Peninsular Malaysia. Bactrocera dorsalis and B. correcta were trapped in northern and central Thailand, B. papayae, B. carambolae and B. umbrosa were restricted to southern Thailand and Malaysia, while B. cucurbitae was widespread, although more abundant in the north. Bactrocera dorsalis, B. papayae and B. correcta exhibited unimodal patterns of population abundance, with populations peaking between June and September depending on species and locality. Bactrocera carambolae, B. cucurbitae and B. umbrosa showed no clear patterns in their population modalities, varying between regions. Based on fruit rearing work undertaken in northern and southern Thailand, information on host use patterns is also provided for the above six species, plus B. latifrons. Bactrocera umbrosa, B. latifrons and B. cucurbitae are confirmed as oligophagous on Artocarpus spp.. Solanum spp. and cucurbit spp., respectively. Species of the B. dorsalis complex (B. dorsalis, B. carambolae, B. papayae) and B. correcta, although with a very wide potential host range, were predominantly reared from a small number of hosts, including Terminalia catappa, Psidium guajava, Syzygium samarangense and Averrhoa carambola. The number of flies reared from such hosts were generally in excess of the proportion of that fruit in regional samples, implying that even though the flies are polyphagous species, not all hosts are used equally.

Author Falcao, M. A., C. R. Clement, J. B. M. Gomes, W. B. Chavez Flores, F. F. Santiag

Title Fenologia e produtividade da fruta-pao (Artocarpus altilis) e da jaca (A. heterophy

Year 2001

Source title Acta Amazonica

Reference 31(2): 179-192

Abstract

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Author Golden, K. D. and O. J. Williams

Title Amino acid, fatty acid, and carbohydrate content of Artocarpus altilis (breadfruit)

Year 2001

Source title Journal of Chromatographic Science

Reference 39(6): 243-250

Abstract

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Author Hashim, O. H., A. S. Shuib and C. T. Chua

Title The interaction of selective plant lectins with neuraminidase-treated and untreated

Year 2001

Source title Immunological Investigations

Reference 30(1): 21-31

Abstract

A study on the binding interaction of lectins from Artocarpus heterophyllus (jacalin), Glycine max and Sambucus nigra with standardised quantity of IgA from the IgA nephropathy patients and normal controls was performed. The Glycine max lectin demonstrated higher affinity towards the serum IgA of IgAN patients as compared to normal controls. However, the affinity binding was lower in cases of jacalin and the Sambucus nigra lectin. When serum samples were treated with neuraminidase, the differential jacalin affinity binding between IgA1 of patients and normal controls was abrogated. Our data are in support of the view that the O-linked oligosaccharide moieties of the patients IgA1 were generally lacking in galactose and sialic acid residues.

Author Hashim, O. H., F. Ahmad and A. S. Shuib

Title The application of Artocarpus integer seed lectin-m in the detection and isolation

Year 2001

Source title Immunological Investigations

Reference 30(4): 347-349

Abstract

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Author Kenoth, R., D. R. Reddy, B. G. Maiya and M. J. Swamy

Title Thermodynamic and kinetic analysis of porphyrin binding to Trichosanthes cucu

Year 2001

Source title European Journal of Biochemistry

Reference 268(21): 5541-5549

Abstract

The interaction of several metallo-porphyrins with the galactose-specific lectin from Trichosanthes cucumeirna (TCSL) has been investigated. Difference absorption spectroscopy revealed that significant changes occur in the Soret band region of the porphyrins upon binding to TCSL and these changes have been monitored to obtain association constants (K-a) and stoichiometry of binding (n). The dimeric lectin binds two porphyrin molecules and the presence of the specific saccharide lactose did not affect porphyrin binding significantly, indicating that the sugar and the porphyrin bind at different sites. The K-a values obtained for the binding of different porphyrins with TCSL at 25 degreesC were in the range of 2 X 10(3)-5 X 10(5) M-1. Association constants for meso-tetra(4-sulphonatophenyl)porphyrinato copper(II) (CuTPPS), a porphyrin bearing four negative charges and meso-tetra(4-methylpyridinium)porphyrinato copper(II) (CuTMPyP), a porphyrin with four positive charges, were determined at several temperatures; from the temperature dependence of the association constants, the thermodynamic parameters change in enthalpy and change in entropy (DeltaH degrees) and change in entropy (DeltaS degrees) associated with the binding process were estimated. The thermodynamic data indicate that porphyrin binding to TCSL is driven largely by a favourable entropic contribution; the enthalpic contribution is very small, suggesting that the binding process is governed primarily by hydrophobic forces. Stopped-flow spectroscopic measurements show that binding of CuTMPyP to TCSL takes place by a single-step process and at 20 degreesC, the association and dissociation rate constants were 1.89 X 10(4) M-1.s(-1) and 0.29 s(-1), respectively.

Author Ko HH; Yang SZ; Lin CN

Title Artocarpol f, a phenolic compound with a novel skeleton, isolated from Artocarpu

Year 2001

Source title Tetrahedron Letters

Reference 42(31): 5269-5270

Abstract

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Author Krishnaveni, A., G. Manimegalai and R. Saravanakumar

Title Storage stability of jack fruit (Artocarpus heterophyllus) rts beverage

Year 2001

Source title Journal of Food Science and Technology

Reference 38(6): 601-602

Abstract

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Author Likhitwitayawuid, K. and B. Sritularak

Title A new dimeric stilbene with tyrosinase inhibitiory activity from Artocarpus gome

Year 2001

Source title Journal of Natural Products

Reference 64(11): 1457-1459

Abstract

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Author Manimegalai, G., A. Krishnaveni and R. S. Kumar

Title Processing and preservation of jack fruit (Artocarpus heterophyllus L.) bar (thandr

Year 2001

Source title Journal of Food Science and Technology

Reference 38(5): 529-531

Abstract

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Author Matthews, R., E. Comissiong, G. Baccus-Taylor and N. Badrie

Title Effect of peeling methods on breadnut (Artocarpus altilis) seeds and acceptability

Year 2001

Source title Journal of Food Science and Technology (Mysore)

Reference 38(4): 402-404

Abstract

Two methods viz., steam at atmospheric pressure and above atmospheric pressure (8 psi) for 5, 10, 15 and 20 min and use of hot (90 +/-2 degreesC), 1% and 10% aqueous solutions of sodium hydroxide and 5% and 10% diammonium orthophosphate for 5, 10, 15, 20 and 25 min were employed to remove the peel from mature (80-90 days old) breadnut (Artocarpus altilis) seeds. Soaking in 5% sodium hydroxide for 5 min, followed by a high-pressure water wash for 5 min resulted in the removal of the arils from the underlying membranes. Peeled seeds were canned in four different brine formulations to yield ready-to-eat products. Sensory evaluation revealed that breadnut seeds canned in 2.5% brine, supplemented with sucrose (1.5%) and calcium chloride (0.2%) were most preferred ($P<0.001$) and yielded significantly ($P<0.001$), the most acceptable taste and texture than other formulations. Canned breadnut seeds were "commercially sterile", with a composition of 3.8% proteins, 1.6% fat, 24.8% carbohydrates, 4.6% minerals and 65.2% moisture.

Author Mui, N. T., I. Ledin, P. Uden and D. Van Binh

Title Effect of replacing a rice bran-soya bean concentrate with jackfruit (Artocarpus he

Year 2001

Source title Livestock Production Science

Reference 72(3): 253-262

Abstract

Eighty weaned goats (Pure Bachthao or F1 of Barbari X Bachthao or Jamnapari X Bachthao) with initial weights of 11.1 to 12.4 ka and ages ranging, between 3.0 and 3.5 months were used in a study to evaluate the foliages of Jackfruit (Artocarpus heterophyllus) or Flemingla (Flemingia macrophylla) as a source of protein in diets based on chopped whole sugar cane (Sacharatum sp.) and Para grass (Brachiaria mutica) for growing goats. Eight goats were allocated to each of 10 treatments in a completely randomised block design and offered Para grass, chopped whole sugar cane, concentrate and foliage for 3 months. The concentrate was replaced by foliage of Jackfruit or Flemingia at five levels: 0, 25, 50, 75 and 100%, based on the protein content of the feeds. The growth rates at the five levels of inclusion were 57, 53, 58, 44 and 30 g/day for the goats fed Jackfruit compared to 56, 49, 31, 25 and 22 g/day for the goats fed Flemingia, respectively. For Jackfruit there were no differences in feed intake or growth rate up to a replacement level of 50% of the protein in the concentrate. Increasing the amount of Flemingia as a replacement for the protein in concentrate resulted in a reduced dry matter intake and decreased live weight gain compared to the control diet. The content of total tannins. was similar for the two foliages and the content of condensed soluble tannins lower in Flemingia than in Jackfruit. Four castrated male goats (one each of the four breeds Bachthao, Jamnapary, Barbary and Beetal) with mean live weights of about 19 kg were used in a 4 X 4 Latin Square design to study the digestibility of the four forages: chopped whole sugar cane, Para grass, Jackfruit foliage and Flemingia foliage. The dry matter digestibility coefficients of chopped whole sugar cane, Para grass, Flemingia and Jackfruit were 0.67, 0.67, 0.51 and 0.53, respectively and the digestibility coefficients for crude protein - 0.68, 0.70, 0.62 and 0.45, respectively. The results show that both Jackfruit and Flemingia can be potential supplements for goats offered tropical grass and chopped whole su-ar cane. Jackfruit can replace up to 100% of a concentrate based on protein content. The practical level will be a question of economics. Flemingia showed a poorer potential as a supplement for goats and replacement levels should not exceed 25% of the protein in the concentrate or 17% of dry matter for growing goats. (C) 2001 Elsevier Science B Y A l l r i g h t s r e s e r v e d .

Author Nanka, O., W. J. Peumans, E. J. M. Van Damme, U. Pfuller, P. Valasek, Z. Halata

Title Lectin histochemistry of microvascular endothelium in chick and quail musculatur

Year 2001

Source title Anatomy and Embryology

Reference 204(5): 407-411

Abstract

The lectin binding pattern of muscular microvessels in chick, quail and chick/quail chimeras was analysed. Paraffin wax sections of muscles from embryonic and adult animals were used. The biotin-labelled lectins were detected by avidin-alkaline phosphatase complex. The following lectins bound to muscular microvessels including arterioles, capillaries and venules of both species: SNA-I (Sambucus nigra agglutinin), MAA (Maackia amurensis agglutinin), AIA (Artocarpus integrifolia agglutinin), VAA-I, VAA-II and VAA- III (Viscum album agglutinin I-III), WGA (wheat germ agglutinin), LEA (Lycopersicon esculentum agglutinin). Endomysium and basement membranes of muscle fibres were also stained to a variable extent and intensity. Only SNA-I stained almost exclusively the endothelium of blood vessels. WFA (Wisteria floribunda agglutinin) bound to the quail endothelium only. MPA (Maclura pomifera agglutinin) marked vessels in adult muscles of chick and quail, but embryonic vessels were stained in quail only. Our results show that lectin histochemistry is a useful tool for visualisation of microvasculature in avian species. In particular, WFA and MPA can be used to determine the origin of endothelia in chick/quail chimeras.

Author Nayak, A., N. B. Das, S. K. Patra and B. Nanda

Title A novel method of extraction of a natural dye from the saw dust of Artocarpus het

Year 2001

Source title Application of chemical engineering for utilisation of natural resources; CHEMIN

Reference New Delhi, 465-466 pp

Abstract

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Author Nwinuka, N. M., J. Ogbanda and E. O. Ayalogu

Title Physicochemical characterization of breadnut (Artocarpus altilis) seed oil

Year 2001

Source title Global Journal of Pure and Applied Sciences

Reference 7(3): 451-454

Abstract

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Author Panunto-Castelo, A., M. A. Souza, M. C. Roque-Barreira and J. S. Silva

Title Km+, a lectin from Artocarpus integrifolia, induces il-12 p40 production by macr

Year 2001

Source title Glycobiology

Reference 11(12): 1035-1042

Abstract

The outcome and severity of some diseases correlate with the dominance of either the T helper 1 (Th1) or Th2 immune response, which is stimulated by IL-12 or IL-4, respectively. In the present study we demonstrate that gamma interferon (IFN-gamma) secretion by murine spleen cells stimulated with KM+, a mannose-binding lectin from Artocarpus integrifolia, is due to IL-12 induction, because (1) macrophages from several sources (including cell lines) produced IL-12 p40 in response to KM+, and (2) lectin-free supernatants from J774 cell line cultures stimulated with KM+ induced the secretion of IFN-gamma by spleen cell cultures, an effect blocked by the supernatant pretreatment with anti-IL-12 antibody. The known pattern of susceptibility of BALB/c mice to infection with Leishmania major, attributed to high levels of IL-4 production leading to a Th2 nonprotective immune response, was modified by administration of KM+. Draining lymph node cells from these immunized BALB/c mice (in contrast to cells from animals immunized only with soluble leishmanial antigen [SLA]) secreted high levels of IFN-gamma and low levels of IL-4, which characterized a Th1 rather than a Th2 response pattern. The footpad thickness of BALB/c mice immunized with SLA plus KM+ and challenged with L. major was similar to that of uninfected mice. This beneficial effect against leishmanial infection was blocked by pretreatment of these mice with anti-IL-12 antibody. These observations indicate that KM+ induces IL-12 p40 in vivo and has a protective effect against L. major infection.

Author Ragone, D.

Title Chromosome numbers and pollen stainability of three species of pacific island bre

Year 2001

Source title American Journal of Botany

Reference 88(4): 693-696

Abstract

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Author Schnell, R. J., C. T. Olano, R. J. Campbell and J. S. Brown

Title AFLP analysis of genetic diversity within a jackfruit germplasm collection

Year 2001

Source title Scientia Horticulturae

Reference 91(3-4): 261-274

Abstract

Twenty-six jackfruit accessions, one interspecific hybrid, champedak, and one breadfruit accession were analyzed using amplified fragment length polymorphic (AFLP) markers to determine the degree of genetic diversity within the Fairchild Tropical Garden (FTG) germplasm. collection. Of the 30 primer pairs evaluated, 12 were identified for collection screening based on Dumber and quality of polymorphic fragments. A total of 187 AFLP markers were scored using the 12 primer pairs, 92 (49.2%) being polymorphic. All accessions could be uniquely identified using the 12 primer pairs. Among the jackfruit accessions, similarity coefficients ranged from 0.567 to 0.950; the accessions also shared a large number of monomorphic fragments (54.9%). Cluster analysis and principal component analysis (PCA) grouped all of the jackfruit accessions with southeast Asian origins into one major cluster with little bootstrap support for groupings within the cluster. The Indian accessions were grouped in a different cluster, as did the hybrid and the breadfruit accession. The AFLP marker based analysis indicates that limited genetic diversity exists within this collection. These observations are in agreement with the phenotypic evaluation and suggest that new accessions be obtained from the center of origin for the species. Published by Elsevier Science B.V.

Author Suhartati, T., S. A. Achmad, N. Aimi, E. H. Hakim, M. Kitajima, H. Takayama an

Title Artoindonesianin l, a new prenylated flavone with cytotoxic activity from Artocar

Year 2001

Source title Fitoterapia

Reference 72(8): 912-918

Abstract

A new prenylated flavone, named artoindonesianin L (1), was isolated from Artocarpus rotunda (Hout) Panzer (Moraceae). Its structure was elucidated as on the basis of spectroscopic evidence. Along with this new compound, four known phenolic compounds were also isolated from this plant and identified as artonins M (2) and E (3), cycloartobiloxanthone (4) and artonin O (5). All these compounds showed significant cytotoxicity against murine P388 leukemia cells. (C) 2001 Elsevier Science B.V. All rights reserved.

Author Sun, W. Q. and Y. H. Liang

Title Discrete levels of desiccation sensitivity in various seeds as determined by the equ

Year 2001

Source title Seed Science Research

Reference 11(4): 317-323

Abstract

This study examined the hypothesis that desiccation sensitivities of recalcitrant and intermediate seeds can be categorized into discrete levels of critical water potential. The equilibrium dehydration method was used to determine the critical water potential (CWP) below which desiccation damage started to occur. The CWP values of Bruguiera cylindrica, Lansium domesticum, Litchi chinensis and Lumitzera racemosa are approximately -4 MPa. The CWP values of Andira inermis, Avicennia alba, Castanea sinensis (from New Zealand), Citrus aurantifolia, Ginkgo biloba, Nephelium lappaceum and Theobroma cacao (immature axis) are approximately -8 MPa. The CWP values of Acer pseudoplatanus, Castanea sinensis (from China), Quercus rubra and Theobroma cacao (mature axis) are approximately -12 MPa. The CWP values of Artocarpus heterophyllus and Hevea brasiliensis are approximately -23 MPa, while the CWP values of Acer platanoides, Azadirachta indica, Carica papaya and Coffea arabica are approximately -73 MPa. Together with data available in earlier literature, these CWP values suggest that there are five discrete levels of critical water potential among desiccation-sensitive seed tissues. These data support the hypothesis that discrete levels of desiccation sensitivity occur among recalcitrant and intermediate seeds, and suggest that specific damaging and protective mechanisms exist at certain hydration levels.

Author Syah, Y. A., S. A. Achmad, E. L. Ghisalberti, E. H. Hakim, L. Makmur and D. M

Title Artoindonesianins g-I, three new isoprenylated flavones from Artocarpus lanceifol

Year 2001

Source title Fitoterapia

Reference 72(7): 765-773

Abstract

Three new isoprenylated flavones, artoindonesianins G-I (1-3), together with the two known flavones artelastofuran (4) and artelasticin (5), have been isolated from the heartwood of Artocarpus lanceifoliu. The structures of the new compounds were determined on the basis of spectroscopic data. Compounds 1-3 and 5 showed strong cytotoxicity against P-388 cells.

Author Van Loi, N., D. K. Chi, D. N. Lien, T. Van Chau and N. H. Phuc

Title Study on manifestations of iga1 anticorps concentrations from serum of healthy pe

Year 2001

Source title Tap Chi Duoc Hoc

Reference (5): 16-17

Abstract

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Author Wesley-Smith, J.

Title Freeze-substitution of dehydrated plant tissues: Artefacts of aqueous fixation revis

Year 2001

Source title Protoplasma

Reference 218(3/4): 154-167

Abstract

This investigation assessed the extent of rehydration of dehydrated plant tissues during aqueous fixation in comparison with the fine structure revealed by freeze-substitution. Radicles from desiccation-tolerant pea (Pisum sativum L.), desiccation-sensitive jackfruit seeds (Artocarpus heterophyllus Lamk.), and leaves of the resurrection plant Eragrostis nindensis Ficalho & Hiern. were selected for their developmentally diverse characteristics. Following freeze-substitution, electron microscopy of dehydrated cells revealed variable wall infolding. Plasmalemmas had a trilaminar appearance and were continuous and closely appressed to cell walls, while the cytoplasm was compacted but ordered. Following aqueous fixation, separation of the plasmalemma and the cell wall, membrane vesiculation and distortion of cellular substructure were evident in all material studied. The sectional area enclosed by the cell wall in cortical cells of dehydrated pea and jackfruit radicles and mesophyll of E. nindensis increased after aqueous fixation by 55, 20, and 30%, respectively. Separation of the plasmalemma and the cell wall was attributed to the characteristics of aqueous fixatives, which limited the expansion of the plasmalemma and cellular contents but not that of the cell wall. It is proposed that severed plasmodesmatal connections, plasmalemma discontinuities, and membrane vesiculation that frequently accompany separation of walls and protoplasm are artefacts of aqueous fixation and should not be interpreted as evidence of desiccation damage or membrane recycling. Evidence suggests that, unlike aqueous fixation, freeze-substitution facilitates reliable preservation of tissues in the dehydrated state and is therefore essential for ultrastructural studies of desiccation.

Author Wesley-Smith, J., N. W. Pammenter, P. Berjak and C. Walters

Title The effects of two drying rates on the desiccation tolerance of embryonic axes of r

Year 2001

Source title Annals of Botany

Reference 88(4): 653-664

Abstract

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Author Wu, A. M.

Title Expression of binding properties of gal/galnac reactive lectins by mammalian glyc

Year 2001

Source title Molecular Immunology of Complex Carbohydrates-2

Reference 491: 55-64

Abstract

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Author Yu, L. G., J. D. Milton, D. G. Fernig and J. M. Rhodes

Title Opposite effects on human colon cancer cell proliferation of two dietary thomsen-

Year 2001

Source title Journal of Cellular Physiology

Reference 186(2): 282-287

Abstract

Increased cell surface expression of the Thomsen-Friedenreich antigen (TF antigen, Gal beta1-3GalNAc alpha-) is a common feature in malignant and pre-malignant epithelia. Our previous studies have shown that dietary TF-binding lectins from peanut (Arachis hypogea) and edible mushroom (Agaricus bisporus) produce marked but different effects on human intestinal epithelial cell proliferation. This study investigates the proliferative effects of the other two known dietary TF-binding lectins: jacalin (Artocarpus integrifolia, JAC) and amaranth lectin (Amaranthus caudatus, ACA). JAC produced dose-dependent and non-cytotoxic inhibition of proliferation in HT29 human colon cancer cells with maximal effects of 46 +/- 4% at 20 mug/ml, whereas ACA produced dose-dependent stimulation of proliferation with maximal effects of 22 +/- 13% at 20 mug/ml when assessed both by incorporation of [H-3]thymidine into DNA and by cell counting. The lectin-mediated effects were inhibitable by the presence of appropriate Gal beta1-3GalNAc-expressing glycoproteins but differences existed between IAC and ACA in their patterns of inhibition by such substances. Ligand binding equilibrium studies using iodinated lectins revealed different Kd of the two lectins for HT29 cell surface glycoproteins. Lectin blots of cell membrane extracts showed different binding patterns in all the four TF-binding lectins. These results provide further evidence that dietary TF-binding lectins can have marked effects on the proliferation of human malignant gastro-intestinal epithelial cells and hence may play a role in intestinal cancer development, and also show that the biological effects of dietary lectins cannot be predicted solely from their carbohydrate binding properties. J. Cell. Physiol. 186:282-287, 2001. (C) 2001 Wiley-Liss, Inc.

Author Amin, S. K. R., S. Banerjee, S. R. Kasturi and B. P. Chatterjee

Title Binding mechanism of methyl-alpha-n-acetyl-d-galactopyranosyl amine to Artoca

Year 2000

Source title Indian Journal of Biochemistry and Biophysics

Reference 37(5):, 299-306

Abstract

The dynamics of the binding mechanism between Artocarpus lakoocha lectin and Me-alpha -D-GalNAc has been studied using H-1 NMR spectroscopy. Various thermodynamic parameters have been calculated with the help of temperature dependence of line broadening of the methoxy group resonance of Me-alpha -D-GalNAc. No change in the chemical shift has been observed while full line width at half height of the sugar protons was found to increase with increasing temperature indicating that the binding ligand is in fast exchange, No chemical shift between bound and free ligands has been observed. The activation parameters obtained from the association and dissociation rate constants suggest that the association process is controlled by high activation entropy which is due to the specific orientation of both lectin and sugar whereas the contribution of activation enthalpy is small. On the other hand, the dissociation reaction is controlled by high activation enthalpy due to the break in the interaction between the sugar and the lectin. From NMR data a two-step binding mechanism has been proposed. The associated complex is stabilized mainly by hydrogen bonding and van der Waals attractions white hydrophobic interaction is not significant as indicated by the negative entropy and enthalpy values.

Author Appukuttan, P. S., B. K. Chacko, M. Geetha, K. I. Annamma and J. Mathai

Title Glutaraldehyde cross-linking of lectins to marker enzymes: Protection of binding s

Year 2000

Source title Indian Journal of Biochemistry and Biophysics

Reference 37(2): 77-80

Abstract

The role of bound specific sugars in protecting the sugar binding activity of several galactose binding proteins during their covalent conjugation to horse radish peroxidase by glutaraldehyde-mediated cross-linking was examined by: a) affinity matrix binding of the conjugate, b) enzyme linked lectin assay and c) hemagglutination assay. During conjugation using 1% glutaraldehyde, protection of jack fruit (Artocarpus integrifolia) lectin (jacalin) activity depended on concentration of specific sugar present during conjugation; optimum protection was offered by 50 mM galactose. This indicated the presence of one or more primary groups at the binding site of jacalin, which is (are) essential for sugar binding. On the other hand, such essential amino group(s) was not indicated at the sugar binding site of the peanut lectin, bovine heart galectin or of the human serum anti alpha-galactoside antibody, since exclusion of sugar during their conjugation to HRP did not diminish sugar binding activity. The differential behavior is discussed in the light of reported differences in sugar specificities. Results indicated that sugar mediated blocking of active site may be used in characterization of the latter in lectins.

Author Aregheore, E. M.

Title Nutritive value of breadfruit (Artocarpus altilis, Park) and cassava (Manihot dulci

Year 2000

Source title Journal of Animal and Feed Sciences

Reference 9(4): 615-624

Abstract

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Author Boonlaksiri, C., W. Oonanant, P. Kongsaeree, P. Kittakoop, M. Tanticharoen and

Title An antimalarial stilbene from Artocarpus integer

Year 2000

Source title Phytochemistry

Reference 54(4): 415-417

Abstract

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Author Buckley, M., P. Xin, S. Washington, N. Herb, D. Erickson and V. P. Bhavanandan

Title Lectin histochemical examination of rabbit bladder glycoproteins and characteriza

Year 2000

Source title Archives of Biochemistry and Biophysics

Reference 375(2): 270-277

Abstract

The glycocalyx of the mucosal surface of urinary bladder acts as an effective barrier against invasion by pathogenic microorganisms and injury from toxic substances in the urine. Defects in these bladder mucosal components could thus be important factors in the development of diseases such as interstitial cystitis and lower urinary tract infections. However, information on the nature of glycoconjugates of mammalian bladder mucosa is very limited. In this study, the glycoconjugates of rabbit bladder were examined histochemically using biotinylated lectins with specificities for a variety of carbohydrate moieties, Three [Artocarpus integrifolia (Jacalin), Datura stramonium (DSL), and Maackia amurensis LT (MAL-II)] of the lectins bound predominantly to the luminal cell layer, with decreased binding to the basal layers of the epithelium. In contrast, Ricinus communis I and Sambucus nigra lectins did not bind to the cells in the epithelium but strongly interacted with the subepithelial layers, especially the lamina propria. The intensity of the staining by Jacalin and MAL-IH was significantly reduced by prior treatment of the bladder sections with O-sialoglycoprotein endopeptidase, indicating that the ligands of these lectins are primarily mucin glycoproteins. In parallel biochemical studies, a high-molecular-weight glycoprotein with characteristics typical of epithelial mucins was purified from the mucosa of rabbit bladder explant cultures metabolically labeled with [H-3]glucosamine, Quantitative analysis of the sialic acid, uronic acid, and hexosamine contents of delipidated rabbit bladder mucosa revealed a larger proportion of sialoglycoproteins compared with glycosaminoglycans. Taken together, the results of histochemical and biochemical analyses indicate that glycoproteins rather than glycosaminoglycans; are the major components of the bladder epithelium, and that the former include a mucin. (C) 2000 Academic Press.

Author Chisholm, S. T., S. K. Mahajan, S. A. Whitham, M. L. Yamamoto and J. C. Carri

Title Cloning of the arabidopsis rtm1 gene, which controls restriction of long-distance

Year 2000

Source title Proceedings of the National Academy of Sciences of the United States of America

Reference 97(1): 489-494

Abstract

The locus RTM1 is necessary for restriction of long-distance movement of tobacco etch virus in Arabidopsis thaliana without causing a hypersensitive response or inducing systemic acquired resistance. The RTM1 gene was isolated by map-based cloning. The deduced gene product is similar to the alpha-chain of the Artocarpus integrifolia lectin, jacalin, and to several proteins that contain multiple repeats of a jacalin-like sequence. These proteins comprise a family with members containing modular organizations of one or more jacalin repeat units and are implicated in defense against viruses, fungi, and insects.

Author Chung, M. I., H. H. Ko, M. H. Yen, C. N. Lin, S. Z. Yang, L. T. Tsao and J. P. W

Title Artocarpol a. A novel constituent with potent anti-inflammatory effect. Isolated fr

Year 2000

Source title Helvetica Chimica Acta

Reference 83(6): 1200-1204

Abstract

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Author Dantas, M. C., D. C. S. Nunes-Pinheiro, D. A. de Albuquerque, R. H. V. Mourao,

Title Immunogenicity and modulatory effect of the lectins from Artocarpus heterophyll

Year 2000

Source title Acta Farmaceutica Bonaerense

Reference 19(2): 109-114

Abstract

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Author Eyles, A. C.

Title Tinginotum kirkaldy in New Zealand and Australia: A shared new species, and a

Year 2000

Source title New Zealand Journal of Zoology

Reference 27(2): 111-119

Abstract

Tinginotum minutum n. sp. from New Zealand and Australia, and Tinginotopsis tuberculatus n. sp. from Norfolk Island, are described and illustrated. The female genitalia for both genera are described and illustrated for the first time. The apex of the second gonapophysis in both genera differs from those previously illustrated for other species of Miridae. A contribution is made to defining the limits of the two genera, and to distinguishing between them. The known distribution of Tinginotum knowlesi (Kirkaldy, 1908) and Tinginotopsis camelus Poppius, 1915 is extended, and a host plant (Artocarpus altilis) for the former is recorded.

Author Gurjar, M. M., S. M. Gaikwad, S. G. Salokhe, S. Mukherjee and M. I. Khan

Title Growth inhibition and total loss of reproductive potential in tribolium castaneum

Year 2000

Source title Invertebrate Reproduction and Development

Reference 38(2): 95-98

Abstract

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Author Ko, H. H., C. N. Lin and S. Z. Yang

Title New constituents of Artocarpus rigida

Year 2000

Source title Helvetica Chimica Acta

Reference 83(11): 3000-3005

Abstract

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Author Komath, S. S., K. Bhanu, B. G. Maiya and M. J. Swamy

Title Binding of porphyrins by the tumor-specific lectin, jacalin [jack fruit (Artocarpus

Year 2000

Source title Bioscience Reports

Reference 20(4): 265-276

Abstract

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Author Likhitwitayawuid, K., B. Sritularak and W. De-Eknamkul

Title Tyrosinase inhibitors from Artocarpus gomezianus

Year 2000

Source title Planta Medica

Reference 66(3): 275-276

Abstract

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Author Makmur, L., Syamsurizal, Tukiran, S. A. Achmad, N. Aimi, E. H. Hakim, M. Kita

Title Artoindonesianin c, a new xanthone derivative from Artocarpus teysmartii

Year 2000

Source title Journal of Natural Products

Reference 63(2): 243-244

Abstract

A new xanthone derivative, artoindonesianin C (1), was isolated from Artocarpus teysmanii, together with two known prenylated flavonoids, cycloartobiloxanthone and artonin J. The structure of artoindonesianin C (1) was determined on the basis of MS and NMR evidence and by comparison with known related compounds.

Author Merlin, J. S. and V. Palanisamy

Title Seed viability and storability of jackfruit (Artocarpus heterophyllus L.)

Year 2000

Source title Seed Research

Reference 28(2): 166-170

Abstract

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Author Mitra SK; Maity CS

Title A summary of the genetic resources of jackfruit (Artocarpus heterophyllus Lamk.)

Year 2000

Source title Tropical and subtropical fruits, Cairns, Australia

Reference Ishs, 269-272 pp

Abstract

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Author Mitra, S. K. and D. Mani

Title Conservation and utilisation of genetic resources in jackfruit (Artocarpus heteroph

Year 2000

Source title Acta Horticulturae

Reference (523): 229-232

Abstract

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Author Peumans WJ; Barre A; Hao Q; Rouge P; Van Damme EJM

Title Higher plants developed structurally different motifs to recognize foreign glycans

Year 2000

Source title Trends in Glycoscience and Glycotechnology

Reference 12(64): 83-101

Abstract

Many plants contain carbohydrate-binding proteins known as lectins. Recent advances in the characterization, cloning and structural analysis allowed to classify plant lectins in seven families of structurally and evolutionary related proteins. Within each lectin family the overall fold and structure of the carbohydrate-binding site(s) are conserved. This structural conservation is reflected in the very similar specificity of lectins belonging to the families of the amaranthins, the chitin-binding lectins composed of hevein domains, the Cucurbitaceae phloem lectins, the monocot mannose-binding lectins and the type 2 ribosome-inactivating proteins. Within the family of jacalin-related lectins the same fold gives raise to two structurally similar binding sites but with a different specificity, and in the legume lectin family a single structure allows the formation of binding sites with a wide range of specificities. An analysis of the structure/specificity relationships of plant lectins leads to important conclusions. First, most lectin families exhibit a highly conserved specificity whereas others cover a broad range of specificities. Second, some carbohydrates are recognized by multiple structurally different carbohydrate-binding motifs. Third, the development of multiple binding motifs for mannose, chitin, and Gal/GalNAc highlights the importance for the plant of a system to sense the presence of these glycans. A closer examination of the specificity further indicates that most plant lectins are not targeted against plant carbohydrates but preferentially bind foreign glycans.

Author Peumans, W. J., B. Hause and E. J. M. Van Damme

Title The galactose-binding and mannose-binding jacalin-related lectins are located in d

Year 2000

Source title Febs Letters

Reference 477(3): 186-192

Abstract

A galactose-specific and a mannose-specific lectin of the family of the jacalin-related lectins have been localized by immunofluorescence microscopy. The present localization studies provide for the first time unambiguous evidence for the cytoplasmic location of the mannose-specific jacalin-related lectin from rhizomes of Calystegia sepium, which definitely differs from the vacuolar location of the galactose-specific jacalin from Autocarpus integrifolia. These observations support the hypothesis that the galactose-specific jacalin-related lectins evolved from their mannose-specific homologues through the acquisition of vacuolar targeting sequences. (C) 2000 Federation of European Biochemical Societies. Published by Elsevier Science B.V.

Author Peumans, W. J., W. L. Zhang, A. Barre, C. H. Astoul, P. J. Balint-Kurti, P. Rovira

Title Fruit-specific lectins from banana and plantain

Year 2000

Source title Planta

Reference 211(4): 546-554

Abstract

One of the predominant proteins in the pulp of ripe bananas (Musa acuminata L.) and plantains (Musa spp.) has been identified as a lectin. The banana and plantain agglutinins (called BanLec and PlanLec, respectively) were purified in reasonable quantities using a novel isolation procedure, which prevented adsorption of the lectins onto insoluble endogenous polysaccharides. Both BanLec and PlanLec are dimeric proteins composed of two identical subunits of 15 kDa. They readily agglutinate rabbit erythrocytes and exhibit specificity towards mannose. Molecular cloning revealed that BanLec has sequence similarity to previously described lectins of the family of jacalin-related lectins, and according to molecular modelling studies has the same overall fold and three-dimensional structure. The identification of BanLec and PlanLec demonstrates the occurrence of jacalin-related lectins in monocot species, suggesting that these lectins are more wide-spread among higher plants than is actually believed. The banana and plantain lectins are also the first documented examples of jacalin-related lectins, which are abundantly present in the pulp of mature fruits but are apparently absent from other tissues. However, after treatment of intact plants with methyl jasmonate, BanLec is also clearly induced in leaves. The banana lectin is a powerful murine T-cell mitogen. The relevance of the mitogenicity of the banana lectin is discussed in terms of both the physiological role of the lectin and the impact on food safety.

Author Rani, P., K. Bachhawat, G. B. Reddy, S. Oscarson and A. Surolia

Title Isothermal titration calorimetric studies on the binding of deoxytrimannoside deri

Year 2000

Source title Biochemistry

Reference 39(35): 10755-10760

Abstract

The carbohydrate binding specificity of the seed lectin from Artocarpus integrifolia, artocarpin, has been elucidated by the enzyme-linked lectin absorbent assay [Misquith, S., et al (1994) J. Biol. Chem. 269, 30393-30401], wherein it was demonstrated to be a Man/Glc specific lectin with high affinity for the trisaccharide present in the core of all N-linked oligosaccharide chains of glycoproteins. As a consequence of this characterization, the binding epitopes of this trisaccharide, 3,6-di(alpha-D-mannopyranosyl)-D-mannose, for artocarpin were investigated by isothermal titration calorimetry using its monodeoxy as well as Glc and Gal analogues. The thermodynamic data presented here implicate 2-, 3-, 4-, and 6-hydroxyl groups of the alpha(1-3) Man and alpha(1-6) Man residues, and the 2- and 4-OH groups of the central Man residue, in binding to artocarpin. Nevertheless, alpha(1-3) Man is the primary contributor to the binding affinity, unlike other Man/Glc binding lectins which exhibit a preference for alpha(1-6) Man. In addition, unlike the binding reactions of most lectins reported so far, the interaction of mannotriose involves all of its hydroxyl groups with the combining site of the lectin. Moreover, the free energy and enthalpy contributions to binding of individual hydroxyl,groups of the trimannoside estimated from the corresponding monodeoxy analogues show nonlinearity, suggesting differential contributions of the solvent and protein to the thermodynamics of binding of the analogues. Thus, this study not only provides evidence for the extended site recognition of artocarpin for the trimannoside epitope but also suggests that its combining site is best described as a deep cleft as opposed to shallow indentations implicated in other lectins.

Author Rouse-Miller, J. and J. E. Duncan

Title In vitro propagation of Artocarpus altilis (Park.) Fosberg (breadfruit) from mature

Year 2000

Source title In Vitro Cellular and Developmental Biology-Plant

Reference 36(2): 115-117

Abstract

A micropropagation protocol for Artocarpus altilis (breadfruit, yellow cultivar) using shoot tip explants taken from mature trees is outlined. Cultures were initiated from shoot tip explants (1-2 mm in length) on either N5K or N15K; (Margara, 1978) macronutrient formulation, MS (Murashige and Skoog, 1962) micronutrients and vitamins and 6-benzyladenine (BA, 4.4 mu M),. Single-node explants obtained from shouts formed at the initiation stage were used at tilt multiplication stage. Multiplication elongation and maintenance were possible on K30NH(4) (Margara. 1978) macronutrients;, MS micronutrients and vitamins and zeatin 2.2 mu M. Shoot elongation was not enhanced by the inclusion of gibberellic acid at 1.4 mu M 2.8 mu M or 14.0 mu M, along with zeatin at 2.2 mu M, when compared with those shoots cultured on zeatin only. N30NH(4) was found to be superior (with respect to shoot quality) to MS macronutrient formulations at the multiplication and maintenance stages, because the shoots with development were more vigorous than those formed on the other macronutrient formulations mentioned. Zeatin at 2.2 mu M yielded 50% more in vitro-formed shoots when compared with BA at 4.4 mu M for the same time period. Shoots rooted on hormone-free medium with a success rate of 60%. Regenerated plantlets were hardened with about a 40% success rate.

Author Sakai, S., M. Kato and H. Nagamasu

Title Artocarpus (moraceae)-gall midge pollination mutualism mediated by a male-flow

Year 2000

Source title American Journal of Botany

Reference 87(3): 440-445

Abstract

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Author Shimizu, K., K. Yoshikawa, R. Kondo and K. Sakai

Title (p-97) the inhibitory components from artocarpus incisus on melanin biosynthesis

Year 2000

Source title Chemistry of Natural Products, Okinawa, Japan

Reference Kyushu University, 535-540 pp

Abstract

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Author Shimizu, K., M. Fukuda, R. Kondo and K. Sakai

Title The 5 alpha-reductase inhibitory components from heartwood of Artocarpus incis

Year 2000

Source title Planta Medica

Reference 66(1): 16-19

Abstract

-

Author Shimizu, K., R. Kondo and K. Sakai

Title Inhibition of tyrosinase by flavonoids, stilbenes and related 4-substituted resorcin

Year 2000

Source title Planta Medica

Reference 66(1): 11-15

Abstract

Several flavonoids, stilbenes and related 4-substituted resorcinols, obtained from Artocarpus incisus and other plants or synthesized, were tested for their inhibitory activity against tyrosinase. The structure-activity relationships suggested that specific natural or synthesized compounds having the 4-substituted resorcinol skeleton have potent tyrosinase inhibitory ability. Kinetic studies have indicated that specific compounds having the 4-substituted resorcinol skeleton exhibit competitive inhibition of the oxidation of DL-beta-(3,4-dihydroxyphenyl)alanine (DL-DOPA) by mushroom tyrosinase. These findings could lead to the design and discovery of new tyrosinase inhibitors.

Author Shimizu, K., R. Kondo, K. Sakai, S. Buabarn and U. Dilokkunanant

Title 5 alpha-reductase inhibitory component from leaves of Artocarpus altilis

Year 2000

Source title Journal of Wood Science

Reference 46(5): 385-389

Abstract

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Author Shimizu, K., R. Kondo, K. Sakai, S. Buabarn and U. Dilokkunanant

Title A geranylated chalcone with 5 alpha-reductase inhibitory properties from Artocar

Year 2000

Source title Phytochemistry

Reference 54(8): 737-739

Abstract

A geranylated chalcone was isolated from leaves of Artocarpus incisus and it showed potent 5 alpha-reductase inhibitory activity.

Author Umapathy, G. and A. Kumar

Title The occurrence of arboreal mammals in the rain forest fragments in the Aanamala

Year 2000

Source title Biological Conservation

Reference 92(3): 311-319

Abstract

The occurrence and abundance of five species of arboreal mammals in 25 rain forest. fragments ranging from < 1 ha to 2500 ha in area in the Anamalai Hills in south India, were examined in relation to several habitat and landscape variables. The lion-tailed macaque (Macaca silenus) was the most affected, being absent from 15 fragments while the Nilgiri langur (Trachypithecus johnii) was absent from six and the Malabar giant squirrel (Ratufa indica) from only three fragments. The densities of the giant squirrel, the large brown flying squirrel (Petaurista petaurista) and the Travancore flying squirrel (Petinomys fusocapillus) increased with decreasing area and increasing disturbance level. In logistic regression, canopy height and tree density were the best predictors of the occurrence of the lion-tailed macaque and the Nilgiri langur, respectively. Area of the fragment may be an important predictor of occurrence of these species only when the fragments are very small. Once initially present, their continued occurrence is better predicted by habitat variation, consistent with the ecology of the species. It is possible to retain the arboreal mammals in the rain forest fragments through improving habitat quality. The suggested measures include (a) prevention of degradation due to lopping and felling of trees; (b) assisted regeneration in forest fragments; and (c) retention of orchards of jack fruit trees (Artocarpus integrfolia), guava (Psidium guajava), etc., in the labour settlements around the fragments. Land use policies that would prevent conversion of cardamom plantations into tea or coffee plantations are also needed. (C) 2000 Elsevier Science Ltd.

Author Umerie SC

Title Isolation and characterization of breadfruit (Artocarpus communis) seed starch

Year 2000

Source title Tropical Science

Reference 40(4): 174-176

Abstract

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Author Wang, H. X., T. B. Ng, V. E. C. Ooi and W. K. Liu

Title Effects of lectins with different carbohydrate-binding specificities on hepatoma, c

Year 2000

Source title International Journal of Biochemistry and Cell Biology

Reference 32(3): 365-372

Abstract

The effects of lectins with different carbohydrate-binding specificities on human hepatoma (H3B), human choriocarcinoma (JAr): mouse melanoma (B16) and rat osteosarcoma (ROS) cell lines were investigated. Cell viability was estimated by uptake of crystal violet. Wheat germ lectin was the lectin with the most deleterious effect on the viability of H3B, JAr and ROS cell lines. The cytotoxicity of lectins with similar sugar-binding specificity to wheat germ lectin, including Maackia amurensis lectin and Solanum tuberosum lectin, was weaker than that of wheat germ lectin. N-acetylgalactosamine-and galactose-binding Tricholoma mongolicum lectin ranked third, after wheat germ lectin and Maackia amurensis lectin, with regard to its effect on H3B, and ranked, together with Maackia amurensis lectin, as the lectins with the second most pronounced effects on ROS. However, the cytotoxic effects of Tricholoma mongolicum lectin on JAr were much weaker than those of Maackia amurensis lectin, Solanum tuberosum lectin and Anguilla anguilla lectin. Artocarpus integrifolia lectin, Lens culinaris lectin and Anguilla anguilla lectin possessed milder cytotoxicity than the remaining lectins, which were approximately equipotent. The mannose-binding Narcissus pseudonarcissus and Lens culinaris lectins were only weakly cytotoxic, the exception being a stronger effect on H3B. The N-acetylgalactosamime-binding Glycine max lectin and methylgalactose-binding Artocarpus integrifolia lectin similarly exhibited low cytotoxicity. IL can thus be concluded that in general the ranking was wheat germ lectin > Maackia amurensis lectin similar or equal to Tricholoma mongolicum lectins > other aforementioned lectins in cytotoxicity. A particular lectin may manifest more conspicuous toxicity on certain cell lines and less on others.

Author Wetprasit, N., W. Threesangsri, N. Klamklai and M. Chulavatnatol

Title Jackfruit lectin: Properties of mitogenicity and the inhibition of herpesvirus infecti

Year 2000

Source title Japanese Journal of Infectious Diseases

Reference 53(4): 156-161

Abstract

Jackfruit lectin (JFL) from Artocarpus heterophyllus has been found to exhibit inhibitory activity in vitro with a cytopathic effect towards herpes simplex virus type 2 (HSV-2), varicella-zoster virus (VZV), and cytomegalovirus (CMV). The 50% inhibitory dose values from plaque reduction assay (inactivation) were 2.5, 5, and 10 mug/ml of JFL for HSV-2, VZV, and CMV, respectively. Lymphocyte proliferation was significantly increased in the presence of the JFL in the concentration range of 2.5 to 50 mug/ml, but was reduced at 500 mug/ml. It was found that CD16(+)/CD56(+) cells (natural killer cells) were induced among the primary lymphocyte subpopulations. The activity of natural killer (NK) cells was not affected by JFL in the concentration range of 5 to 500 mug/ml. These data suggest that JFL is mitogenic for NK lymphocyte (CD16(+)/CD56(+)) and also active against HSV-2, VZV, and CMV.

Author Wu, Y., H. Zhang, S. Zhou, Y. Deng, D. Zhou and W. Lin

Title Characterization of Artocarpus hypargyreus lectin interacting with glycoproteins

Year 2000

Source title Chinese Journal of Biochemistry and Molecular Biology

Reference 16(2): 210-214

Abstract

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Author Zhang, W. L., W. J. Peumans, A. Barre, C. H. Astoul, P. Rovira, P. Rouge, P. Pro

Title Isolation and characterization of a jacalin-related mannose-binding lectin from sal

Year 2000

Source title Planta

Reference 210(6): 970-978

Abstract

A novel plant lectin was isolated from salt-stressed rice (Oryza sativa L.) plants and partially characterized. The lectin occurs as a natural mixture of two closely related isoforms consisting of two identical non-covalently linked subunits of 15 kDa. Both isoforms are best inhibited by mannose and exhibit potent mitogenic activity towards T-lymphocytes. Biochemical analyses and sequence comparisons further revealed that the rice lectins belong to the subgroup of mannose-binding jacalin-related lectins. In addition, it could be demonstrated that the lectins described here correspond to the protein products of previously described salt-stress-induced genes. Our results not only identify the rice lectin as a stress protein but also highlight the possible importance of protein-carbohydrate interactions in stress responses in plants.

Author Albuquerque, D. A., G. A. Martins, A. Campos-Neto and J. S. Silva

Title The adjuvant effect of jacalin on the mouse humoral immune response to trinitrop

Year 1999

Source title Immunology Letters

Reference 68(2-3): 375-381

Abstract

We have evaluated the adjuvant action of jacalin, a lectin obtained from seeds of Artocarpus integrifolia, on humoral immune response against the trinitrophenyl (TNP) hapten when conjugated to it and to Trypanosoma cruzi. The protective effect of parasite-specific antibodies generated in mice immunized with epimastigote forms of T. cruzi plus jacalin was also evaluated by determining the parasitemia levels of animals after infection with 1000 trypomastigote forms. Immunization of mice with trinitrophenylated jacalin (TNP-JAC) in saline resulted in an antibody response to the TNP hapten that was eight and 16 times higher than that found in mice immunized with TNP-human gamma globulin (TNP-HGG) or TNP-bovine serum albumin (TNP-BSA), respectively. In addition, immunization with either a lysate or viable epimastigote forms of T. cruzi the presence of jacalin resulted in a marked increase in the levels of anti-T. cruzi antibodies. The protective action of antibodies against acute infection by T. cruzi was evident when mice were immunized with 1.0 x 10(5) epimastigotes plus jacalin. These animals had a significantly lower parasitemia than those immunized with epimastigotes alone. In contrast, mice immunized with 1.0 x 10(6) epimastigotes developed very low levels of parasitemia, regardless of the presence of jacalin. These data suggest that jacalin is a potent adjuvant in the humoral response to TNP and T. cruzi, and that the protective action of the T. cruzi-specific antibodies depends on the number of parasites used in the immunization protocol.

Author Andrade, A. F. B. and F. M. B. Saraiva

Title Lectin-binding properties of different Leishmania species

Year 1999

Source title Parasitology Research

Reference 85(7): 576-581

Abstract

Carbohydrate cell-surface residues on stationary promastigotes of 19 isolates of Leishmania were studied with a panel of 27 highly purified lectins, which were specific for N-aceryl-D-glucosamine, D-mannose, L-fucose, D-galactose, N-acetyl-D-galactosamine, and sialic acid. The specificity of the cell-surface carbohydrates was analyzed by agglutination and radioiodinated lectin-binding assays. L. (L.) amazonensis and L. (L.) donovani were agglutinated by 12 and 10 of the 27 lectins used, respectively. Artocarpus integrifolia lectin (Jacalin) was incapable of agglutinating the tested species of the donovani complex, and this result was confirmed by radioiodinated Jacalin-binding assays. Jacalin had an average of 3.8 x 10(6) receptors/L. (L) amazonensis promastigote and bound with an association constant of 5 x 10(6) M-1.

Author Baldus, S. E., F. G. Hanisch, E. Monaca, U. R. Karsten, T. K. Zirbes, J. Thiele an

Title Immunoreactivity of thomsen-friedenreich (tf) antigen in human neoplasms: The i

Year 1999

Source title Histology and Histopathology

Reference 14(4): 1153-1158

Abstract

On the basis of their known fine specificities we evaluated the immunohistochemical marker qualities of two monoclonal antibodies (mabs) defining the tumor-associated TF disaccharide Gal beta 1-3GalNAc. This antigen is expressed in certain tumors in correlation with prognosis and metastasis. The reactivity of one of these mabs (A78-G/A7) depends on clustered TF disaccharides (glycosylation at vicinal Ser/Thr positions) while the other - mab BW835 - has been characterized to bind specifically to TF disaccharide linked to a motif within the MUC1 repeat. Therefore, mab BW835 represents an interesting tool for the identification of tumor-associated glycoforms of MUC1, which are involved in tumor progression and metastasis, but also in the recognition of tumor cells by cytotoxic T cells. - As references the TF-binding lectins from peanut (PNA) and Artocarpus integrifolia (jacalin) were applied. The binding patterns of these immunoreagents were strikingly distinct. Mab BW835 showed a significantly stronger reactivity than mab A78-G/A7, especially in gastric, mammary, pancreatic, thyreoideal, renal and bladder carcinomas. PNA and jacalin receptors exhibited an expression in the majority of all cancer types, with the exception of seminoma and glioblastoma/sarcoma. These results can be explained by the broader fine specificities of the lectins. Furthermore, a strong expression of MUC1-bound TF antigen is indicated by the staining pattern of mab BW835. The marker qualities of both antigens, TF and MUC1, are combined in the binding specificity of BW835, and hence this antibody may have a high impact for the immunodetection of these tumor-associated antigens.

Author Bandyopadhyay, S., M. Majumder and B. P. Chatterjee

Title Subcellular localization of artocarpin, a lectin from Artocarpus lakoocha seeds

Year 1999

Source title Biochemical Archives

Reference 15(4): 285-290

Abstract

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Author Hakim, E. H., A. Fahriyati, M. S. Kau, S. A. Achmad, L. Makmur, E. L. Ghisalber

Title Artoindonesianins a and b, two new prenylated flavones from the root of Artocarp

Year 1999

Source title Journal of Natural Products

Reference 62(4): 613-615

Abstract

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Author Ibrahim, M. N. M. and G. Zemmelink

Title Effect of plant fibre on the solubility of mineral elements

Year 1999

Source title Asian Australasian Journal of Animal Sciences

Reference 12(8): 1277-1284

Abstract

Eight feeds and their residues left after washing with tap water (water residue) or incubation in the rumen (rumen residues) were treated with hydrochloric acid, neutral detergent solution without EDTA (NDS) or both, and the release or sorption of minerals (Ca, Mg, P, Na, K, Cu and Zn) assessed. Six of the feeds were from Sri Lanka (Panicum maximum ecotype Guinea A, Glyricidia maculata, Artocarpus heterophyllus (jak leaves), untreated and urea-treated rice straw, and rice bran) and two from the Netherlands (maize silage and wheat straw). The initial concentration of mineral elements, the concentration of neutral detergent fibre (NDF) and the type of feed significantly influenced ($p<0.01$). The proportion of the mineral elements released or sorbed. In general, feeds with high NDF content (straws and guinea grass) sorbed Ca from tap water, or released less in the rumen, and within these feeds the extent of sorption varied with source of fibre. Acid or NDS treatment removed little of the sorbed Ca, but they removed much of the Mg from both water and rumen residues. Fibres of wheat straw and jak leaves showed an affinity for Mg in the rumen. All feeds and their water and rumen residues sorbed P and Na from NDS, and the extent of sorption varied with the initial concentrations of these elements and with the type of fibre. Acid treatment removed part of the sorbed Na, but not the P. The solubility of K was not affected by the content of NDF, the type of fibre or the initial concentration of K. Ail feeds and their residues, except for the rumen residues of rice bran, sorbed Cu from tap water and in the rumen. The recovery of Cu in rumen residues declined from 353% to 147% after NDS treatment, and with some feeds (glyricidia and jak leaves) the recovery was below 100%. Acid treatment removed part of the Zn sorbed by the water and rumen residues, but the capacity of residues to retain Zn varied with the type of feed.

Author Indrayan, A. K., R. K. Shukla and R. Kumar

Title Isolation and extraction of medicinally useful dye from the heartwood of Artocarp

Year 1999

Source title Asian Journal of Chemistry

Reference 11(1): 141-143

Abstract

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Author Jamaludheen, V. and B. M. Kumar

Title Litter of multipurpose trees in Kerala, India: Variations in the amount, quality, de

Year 1999

Source title Forest Ecology and Management

Reference 115(1): 1-11

Abstract

In a field study involving 8-9 year-old woodlots of nine fast growing tree species in Kerala, India, the amount and nutrient content of litterfall were monitored. Decay rate constants and litter half-lives were estimated by fitting a single exponential model to the litter decomposition data. Annual litter production ranged from 3.43 Mg ha(-1) (Pterocarpus) to 12.69 Mg ha(-1) (Acacia). Litterfall of Acacia, Ailanthus, Pterocarpus and Casuarina followed a uni-modal distribution pattern. Nutrient content of litter samples showed considerable variations, owing to species and sampling time. Based on mean litter N content, the nine species were broadly divided into high, medium and low detrital N species. Litterfall accounted for substantial nutrient recycling within the system. Results of the litter bag study revealed that residual litter mass declined exponentially with time for Ailanthus, Pterocarpus, Casuarina and Leucaena. Paraserianthus showed a linear trend, while Emblica and the two Artocarpus species exhibited a bi-phasic pattern of mass loss. Both initial lignin content and lignin-N ratio had a negative, although modest influence on decay rate coefficients, while initial N content exerted a positive influence. Nutrient release from the decomposing litter followed either a tri-phasic pattern characterised by an initial accumulation, followed by a rapid release and a final slower release phase, or a bi-phasic pattern that is devoid of the initial accumulation phase.

Author Kader, S. A., K. R. Bindu and K. C. Chacko

Title Occurrence of mono and polyembryonic albino seedlings in Artocarpus hirsuta, H

Year 1999

Source title Indian Forester

Reference 125(11): 1167-1168

Abstract

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Author Lebot, V.

Title Biomolecular evidence for plant domestication in Sahul

Year 1999

Source title Genetic Resources and Crop Evolution

Reference 46(6): 619-628

Abstract

The question of the introduction of domesticated plants from the Sunda plate (South-east Asia) to Sahul (New Guinea, Australia and Tasmania) has been a subject of speculation and debate for decades. This paper reviews recent phylogenetic studies conducted with biomolecular markers on bananas (Musa spp.), breadfruit (Artocarpus altilis), sugarcane (Saccharum spp.), taro (Colocasia esculenta) and the greater yam (Dioscorea alata). Biomolecular evidence for plant domestication in Sahul is presented and discussed. Biomolecular markers reveal that for these crops at least, domestication has occurred in New Guinea and further east in Melanesia. This domestication produced cultivated genotypes that were selected from the endemic wild gene pools. These areas of domestication still are important centres of diversity for crop species that also exist in Asia. For most crops, genetic distances are very important between the two gene pools due to the geographic isolation of the two continental plates. The implications of these findings have obvious bearings on genetic resources programme strategies and future surveys.

Author Mattos-Guaraldi, A. L., E. A. Cappelli, J. O. Previato, L. C. D. Formiga and A. F.

Title Characterization of surface saccharides in two corynebacterium diphtheriae strain

Year 1999

Source title FEMS Microbiology Letters

Reference 170(1): 159-166

Abstract

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Author Mourao, R. H. V., J. Xavier Filho, E. W. Alves, E. G. Orellano, D. F. De Melo, M

Title Isolation and partial characterization of heterophyllin, a new lectin from Artocarp

Year 1999

Source title Acta Farmaceutica Bonaerense

Reference 18(1): 41-48

Abstract

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Author Oshodi, A. A., K. O. Ipinmoroti and T. N. Fagbemi

Title Chemical composition, amino acid analysis and functional properties of breadnut

Year 1999

Source title Nahrung-Food

Reference 43(6): 402-405

Abstract

Breadnut flour was processed and evaluated in the laboratory for chemical composition, amino acid and functional properties. The results showed that breadnut flour contained high quality protein with total essential amino acid of 55.1% which is comparable with that of soya flour and egg; while it is better than most nuts and oil seeds. - Most of the essential amino acids satisfy the range for infant requirement or even higher than the maximum value of the range. The most predominant amino acids in breadnut are valine, glutamic acid and aspartic acid, while the limiting amino acid is methionine + cystine. Breadnut protein has minimum solubility at pH 5 and maximum solubility at pH 8. Potassium is the most abundant among the minerals determined (0.7 g/100 g) while magnesium (0.08 g/100 g) is the least. - The result of the functional properties showed that the flour may be useful as a thickener and protein supplement in diet.

Author Rahman, M. A., N. Nahar, A. J. Mian and M. Mosihuzzaman

Title Variation of carbohydrate composition of two forms of fruit from jack tree (Artoc

Year 1999

Source title Food Chemistry

Reference 65(1): 91-98

Abstract

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Author	Rao, K. N., M. M. Gurjar, S. M. Gaikwad, M. I. Khan and C. G. Suresh
Title	Crystallization and preliminary x-ray studies of the basic lectin from the seeds of
Year	1999
Source title	Acta Crystallographica Section D Biological Crystallography
Reference	55(6): 1204-1205
Abstract	

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Author	Rao, P. S., S. S. Murti and K. Venkaiah
Title	Albinism in Artocarpus integrifolia Linn. F. - a case study
Year	1999
Source title	Indian Forester
Reference	125(11): 1095-1098
Abstract	

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Author Rosa, J. C., P. S. L. De Oliveira, R. Garratt, L. Beltramini, K. Resing, M. C. Roqu

Title Km+, a mannose-binding lectin from Artocarpus integrifolia: Amino acid sequenc

Year 1999

Source title Protein Science

Reference 8(1): 13-24

Abstract

The complete amino acid sequence of the lectin KM+ from Artocarpus integrifolia (jackfruit), which contains 149 residues/mol, is reported and compared to those of other members of the Moraceae family, particularly that of jacalin, also from jackfruit, with which it shares 52% sequence identity. KM+ presents an acetyl-blocked N-terminus and is not posttranslationally modified by proteolytic cleavage as is the case for jacalin. Rather, it possesses a short, glycine-rich linker that unites the regions homologous to the alpha- and beta-chains of jacalin. The results of homology modeling implicate the linker sequence in sterically impeding rotation of the side chain of Asp141 within the binding site pocket. As a consequence, the aspartic acid is locked into a conformation adequate only for the recognition of equatorial hydroxyl groups on the C4 epimeric center (alpha-D-mannose, alpha-D-glucose, and their derivatives). In contrast, the internal cleavage of the jacalin chain permits free rotation of the homologous aspartic acid, rendering it capable of accepting hydrogen bonds from both possible hydroxyl configurations on C4. We suggest that, together with direct recognition of epimeric hydroxyls and the steric exclusion of disfavored ligands, conformational restriction of the lectin should be considered to be a new mechanism by which selectivity may be built into carbohydrate binding sites. Jacalin and KM+ adopt the beta-prism fold already observed in two unrelated protein families. Despite presenting little or no sequence similarity, an analysis of the beta-prism reveals a canonical feature repeatedly present in all such structures, which is based on six largely hydrophobic residues within a beta-hairpin containing two classic-type beta-bulges. We suggest the term beta-prism motif to describe this feature.

Author Silva-Lucca, R. A., M. Tabak, O. R. Nascimento, M. C. Roque-Barreira and L. M.

Title Structural and thermodynamic studies of km plus , a d-mannose binding lectin fro

Year 1999

Source title Biophysical Chemistry

Reference 79(2): 81-93

Abstract

The KM+ lectin exhibits a novel and unusual circular dichroism (CD) spectrum that could be explained by a high proline content that would be inducing deformation of the p-structure and/or unusual turns. KM+ was shown to be a very rigid lectin, which was very stable under a broad variety of conditions (urea, guanidine, hydrolysis, pH, etc.). Only incubation for 60 min at 333-338 K and extreme basic pH were able to induce conformational changes which could be observed by CD and fluorescence measurements. Data from CD are typical for protein denaturing associated with changes in the overall secondary structure. Data from high-performance size exclusion chromatography (SEC) showed that the denatured forms produced at pH 12.0 are eluted in clusters that co-elute with the native forms. A significant contribution from the tyrosines to the fluorescence emission upon denaturation was observed above 328 K. In fact at 328 K some broadening of the emission spectrum takes place followed by the appearance of a shoulder (approx. 305 nm) at 333 K and above. The sensitivity of tryptophan fluorescence to the addition of sugar suggests a close proximity of the tryptophan residues to the sugar binding site, K-a = (2.9 +/- 0.6) x 10(3) M-1. The fraction of chromophore accessible to the quencher obtained is f(a) = 0.43 +/- 0.08, suggesting that approximately 50% of the tryptophan residues are not accessible to quenching by D-mannose. KM+ thermal denaturation was found to be irreversible and was analyzed using a two-state model (N --> D). The results obtained for the activation energy and transition temperature from the equilibrium CD studies were: activation energy, E-a = 134 +/- 11 kJ/mol and transition temperature, T-m= 339 +/- 1 K, and from the fluorescence data: E-a = 179 +/- 18 kJ/mol and T-m = 337 +/- 1 K. Kinetic studies gave the following values: E-a = 108 +/- 18 kJ/mol and E-a = 167 +/- 12 kJ/mol for CD and fluorescence data, respectively.

Author Suzuki, E.

Title Diversity in specific gravity and water content of wood among bornean tropical ra

Year 1999

Source title Ecological Research

Reference 14(3): 211-224

Abstract

Wood properties were measured for trees in lowland dipterocarp forests in West Kalimantan. In 1993 and 1994, 353 samples of 286 species were collected from trunk base of trees of approximately 5 cm in diameter, and the specific gravities (SG: oven dry weight/fresh volume) and water contents of wood including bark were measured. The SG of each species ranged from 0.21 to 0.84, and the mean +/- SD was 0.53 +/- 0.13. The wide range of SG suggests that the forest had a high diversity in wood properties. The most dominant and diversified genus in this area was Shorea, and the SG of 15 species varied from 0.21 to 0.71. The range covered SG of pioneer (six Macaranga, 0.29-0.43) and small trees in primary forests (nine Eugenia and 10 Xanthophyllum, 0.55-0.77). The SG average for tree species of secondary forests of 2-6 years old was 0.31. It was significantly smaller than that of primary forests (0.58). In a primary dipterocarp forest plot, light-wood species grew faster in diameter than heavy-wood species. Water content ranged from 0.26 to 0.76. Heavy wood had low water content. Among light-wood species, some (Shorea, Artocarpus) had low water contents and others (Ficus) had high water contents. Some riverine trees also had high water contents. These wood properties appear strongly related to the life history of trees and successional stage.

Author Thammasiri, K.

Title Cryopreservation of embryonic axes of jackfruit

Year 1999

Source title Cryo Letters

Reference 20(1): 21-28

Abstract

Embryonic axes of jackfruit (Artocarpus heterophyllus Lamk. cv. 'Thong Prasert') were cryopreserved by desiccation and vitrification, but only the vitrification method was successful. Optimal conditions for vitrification protocol were as follows: Embryonic axes from fully mature seeds were excised and precultured on Woody Plant Medium (WPM) supplemented with 0.3M sucrose and 0.5M glycerol at 25 +/- 2 degrees C for 16 h. Subsequently the axes were transferred to 2 ml cryotubes filled with PVS2 vitrification solution at 25 +/- 2 degrees C for 50 min. The axes were then plunged rapidly in liquid nitrogen. After rapid warming, the PVS2 solution was replaced with 0.5 ml of 1.2M sucrose in WPM solution and kept at 25 +/- 2 degrees C for 20 min prior to transfer on WPM agar medium. The survival rate of cryopreserved axes was about 50% and cryopreserved axes were able to develop into whole plantlets.

Author Zhang, C., S. Zhou, Y. Wu, Y. Deng and D. Zhou

Title Purification and characterization of lectin-from the seeds of Artocarpus lingnanen

Year 1999

Source title Chinese Journal of Biochemistry and Molecular Biology

Reference 15(1): 142-144

Abstract

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Author Bartsch, A.

Title Artocarpus altilis - the breadfruit tree - a south seas' plant of commercial and nutri

Year 1998

Source title Dragoco Report

Reference (3): 146-152

Abstract

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Author Do, S. I. and K. Y. Lee

Title Jacalin interacts with asn-linked glycopeptides containing multi-antennary oligosa

Year 1998

Source title Febs Letters

Reference 421(2): 169-173

Abstract

The carbohydrate binding properties of jacalin lectin were examined using RAF9 cell-derived D-[6-H-3]glucosamine-radiolabeled total glycopeptides containing N-linked and O-linked oligosaccharides. The binding of N-linked glycopeptides to jacalin was abolished by treatment of alpha-galactosidase whereas O-linked glycopeptides were still bound lectin after this treatment, The removal of O-linked oligosaccharides by mild alkaline/borohydride treatment completely eliminated the lectin binding of alpha-galactosidase treated glycopeptides. These results demonstrate that jacalin interacts with cellular glycopeptides containing N-linked oligosaccharides with terminal alpha-galactose residues as well as glycopeptides containing O-linked oligosaccharides. (C) 1998 Federation of European Biochemical Societies.

Author Gaikwad, S. M., M. M. Gurjar and M. I. Khan

Title Fluorimetric studies on saccharide binding to the basic lectin from Artocarpus hirs

Year 1998

Source title Biochemistry and Molecular Biology International

Reference 46(1): 1-9

Abstract

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Author Ganiko, L., A. R. Martins, E. M. Espreafico and M. C. Roque-Barreira

Title Neutrophil haptotaxis induced by the lectin km+

Year 1998

Source title Glycoconjugate Journal

Reference 15(5): 527-530

Abstract

KM+ is a D-mannose binding lectin from Artocarpus integrifolia that induces neutrophil migration in vitro and in vivo. This attractant activity was shown to be caused by haptotaxis rather than chemotaxis. The inhibition by D-mannose of the neutrophil attraction exerted by KM+, both in vitro and in vivo, supports the idea that haptotaxis is triggered in vivo by the sugar binding sites interacting with glycoconjugates located on the neutrophil surface and in the extracellular matrix. In the present study an in vivo haptotaxis assay was performed by intradermally (i.d.) injecting I-125-KM+ (200 ng), which led to a selective staining of loose connective tissue and vascular endothelium. The radiolabelled area exhibited a maximum increase (five-fold) in neutrophil infiltration 3 h after injection, relative to i.d. 200 ng I-125-BSA. We characterized the ex vive binding of KM+ to tissue elements by immunohistochemistry, using paraformaldehyde-fixed, paraffin-embedded, untreated rat skin. Bound KM+ was detected with an affinity-purified rabbit IgG anti-KM+ and visualized with an alkaline phosphatase based system. KM+ binding to connective tissue and vascular endothelium was inhibited by preincubating KM+ with 0.4 m MD-mannose and was potentiated by heparan sulfate (100 mu g ml(-1)). An in vitro assay carried out in a Boyden microchamber showed that heparan sulfate potentiated the attractant effect of 10 mu g KM+ by 34%. The present data suggest that KM+ induces neutrophil migration in vive by haptotaxis and that the haptotactic gradient could be provided by the interaction of the KM+ carbohydrate recognition site(s) with mannose-containing glycoconjugate(s) in vascular endothelium and connective tissue. Heparan sulfate would act as an accessory molecule, enhancing the KM+ tissue binding and potentiating the induced neutrophil haptotaxis.

Author Geshi, N. and A. Brandt

Title Two jasmonate-inducible myrosinase-binding proteins from Brassica napus L. see

Year 1998

Source title Planta

Reference 204(3): 295-304

Abstract

Two homologous but different cDNAs encoding a 97-kDa and a 70-kDa protein from Brassica napus L. seedlings have been characterized. Both proteins contain sequence motifs with high homology to the IgA binding lectin, jacalin, and the deduced 97-kDa protein contains the peptide sequences of myrosinase-binding proteins. The 70-kDa and the 97-kDa protein can both be isolated as a complex containing myrosinase, indicating they indeed are myrosinase-binding proteins. We provide evidence that the 70-kDa protein binds IgA in vitro, and therefore classify the protein as a jacalin-type lectin. Both the 97-kDa and the 70-kDa proteins are encoded by a small number of genes in the Brassica genome. The mRNA for the 97-kDa protein is detected in both light-and dark-grown seedlings, whereas the mRNA for the 70-kDa protein is mainly detected in etiolated seedlings. The transcript levels for both proteins are transient and are rapidly increased by methyl jasmonate. The 70-kDa protein is synthesized de novo during germination and accumulates mainly in the hypocotyl and in the root. By immunogold labeling we show that a few cells scattered in the cotyledons of young seedlings (approx. 5% of total cells), contain protein-body-like structures with the 70-kDa protein. These bodies are present in a 10 000 g pellet from which the 70-kDa protein can be extracted by sodium carbonate. In addition, the 70-kDa protein is detected in the amorphous structures of the vacuole in a few cells of the cotyledon, the hypocotyl and the root.

Author Gurjar, M. M., M. I. Khan and S. M. Gaikwad

Title Alpha-galactoside binding lectin from Artocarpus hirsuta: Characterization of the

Year 1998

Source title Biochimica et Biophysica Acta-General Subjects

Reference 1381(2): 256-264

Abstract

The hemagglutinin from the seeds of Artocarpus hirsuta was purified to homogeneity by ion-exchange chromatography on DEAE-cellulose and CM-sephadex. The native protein of molecular mass 60,000 (gel filtration) is made up of two pairs of unidentical subunits, alpha and beta with molecular masses of 15,800 and 14,130. The lectin is basic in nature (pI 8.5) and a glycoprotein with neutral sugar content of 6.25%. Rabbit as well as human erythrocytes (A, B and O) are agglutinated by the lectin. The lectin activity is neither affected by Ca2+, Mg2+ or Mn2+ nor by EDTA. Methyl alpha-D-galactopyranoside, pNP-alpha-D-galactopyranoside and pNP-alpha-D-N-acetylgalactosamine are the best inhibitors of the lectin. 4-Methylumbelliferyl-alpha-galactopyranoside fluorescence was quenched on binding to A. hirsuta lectin. The sugar has two binding sites per tetramer of the lectin with a K-a of 3.5 x 10(5) M-1 at 25 degrees C. Chemical modification studies indicate that the net positive charge associated with epsilon-NH2 of lysine residues and the phenyl ring of tyrosine are essential for the sugar binding activity of A. hirsuta lectin.

Author Gurjar, M. M., M. I. Khan and S. M. Gaikwad

Title --galactoside binding lectin from Artocarpus hirsuta: Characterization of the sugar

Year 1998

Source title Biochimica et Biophysica Acta

Reference 1381(2): 256-264

Abstract

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Author Harborne, J. B. and C. A. Williams

Title Anthocyanins and other flavonoids

Year 1998

Source title Natural Product Reports

Reference 15(6): 631-652

Abstract

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Author Kabir, S.

Title Jacalin: A jackfruit (Artocarpus heterophyllus) seed-derived lectin of versatile app

Year 1998

Source title Journal of Immunological Methods

Reference 212(2): 193-211

Abstract

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Author Kijjoa, A., H. M. Cidade, M. J. T. G. Gonzalez, C. M. Afonso, A. M. S. Silva and

Title Further prenylflavonoids from Artocarpus elasticus

Year 1998

Source title Phytochemistry

Reference 47(5): 875-878

Abstract

Further study of one of the fractions from the wood of Artocarpus elasticus gave two new prenylated flavones artelastinin and artelastofuran in addition to artelasticin and cyclocommunin. Structures were elucidated by spectroscopic techniques.

Author Klinger, L. F., J. Greenberg, A. Guenther, G. Tyndall, P. Zimmerman, M. M'Bang

Title Patterns in volatile organic compound emissions along a savanna-rainforest gradie

Year 1998

Source title Journal of Geophysical Research-Atmospheres

Reference 103(D1): 1443-1454

Abstract

In temperate regions the chemistry of the lower troposphere is known to be significantly affected by biogenic volatile organic compounds (VOCs) emitted by plants, The chemistry of the lower troposphere over the tropics, however, is poorly understood, in part because of the considerable uncertainties in VOC emissions from tropical ecosystems. Present global VOC models predict that base emissions of isoprene from tropical rainforests are considerably higher than from savannas. These global models of VOC emissions which rely mainly on species inventories are useful, but significant improvement might be made with more ecologically based models of VOC emissions by plants. Ecosystems along a successional transect from woodland savanna to primary rainforest in central Africa were characterized for species composition and vegetation abundance using ground surveys and remotely sensed data. A total of 336 species (mostly trees) at 13 sites were recorded, and 208 of these were measured for VOC emissions at near-optimal light and temperature conditions using a leaf cuvette and hand-held photoionization detector (PID). A subset of 59 species was also sampled using conventional VOC emission techniques in order to validate the PID technique. Results of ecological and VOC emission surveys indicate both phylogenetic and successional patterns along, the savanna-rainforest transect. Genera and families of trees which tend to emit isoprene include Lophira, Irvingia, Albizia, Artocarpus, Ficus, Pterocarpus, Caesalpiniaceae, Arecaceae, and Moraceae. Other taxa tend to contain stored VOCs (Annonaceae and Asteraceae). Successional patterns suggest that isoprene emissions are highest in the relatively early successional Isoberlinia forest communities and progressively decrease in the later successional secondary and primary rainforest communities. Stored VOCs appear to increase along the savanna-rainforest succession, but these data are more tentative. These findings are consistent with successional patterns of isoprene and terpene fluxes in North American forests and highlight the feasibility of constructing better predictive models of VOC emissions.

Author Ko, F. N., Z. J. Cheng, C. N. Lin and C. M. Teng

Title Scavenger and antioxidant properties of prenylflavones isolated from Artocarpus

Year 1998

Source title Free Radical Biology and Medicine

Reference 25(2): 160-168

Abstract

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Author Kumar, B. M., S. J. George, V. Jamaludheen and T. K. Suresh

Title Comparison of biomass production, tree allometry and nutrient use efficiency of

Year 1998

Source title Forest Ecology and Management

Reference 112(1-2): 145-163

Abstract

In woodlot and silvopasture experiments involving a total of three age-sequences, the rates of biomass accumulation and nutrient accumulation by multipurpose trees were evaluated. The woodlot experiment included nine multipurpose trees (Acacia auriculiformis, Ailanthus triphysa, Artocarpus heterophyllus, Artocarpus hirsutus, Casuarina equisetifolia, Emblica officinalis, Leucaena leucocephala cv. K8, Paraserianthes falcataria and Pterocarpus marsupium) and the silvopastoral experiment involved a subset of four trees (Acacia auriculiformis, Ailanthus triphysa, Casuarina equisetifolia and Leucaena leucocephala cv. K8). Both plantings were maintained at Thiruvazhamkunnu, Kerala, India. Trees in the woodlot experiment were felled (partially) at 8.8 years of age and that of the silvopastoral experiment both at 5 years and 7 years of age. Rate of biomass accumulation and nutrient accumulation was highest for Acacia and the least for Leucaena. Allometric relationships linking above ground biomass with DBH and/or total height gave reasonable predictions, A comparison between species and among tissue types within species indicated that nutrient use efficiency for N, P and K varied widely. Implications for nutrient export from the site through whole tree harvesting systems involving fast growing multipurpose tree species are discussed.

Author Lee, X., A. Thompson, Z. M. Zhang, H. Ton-that, J. Biesterfeldt, C. Ogata, L. L.

Title Structure of the complex of maclura pomifera agglutinin and the t-antigen disacch

Year 1998

Source title Journal of Biological Chemistry

Reference 273(11): 6312-6318

Abstract

Maclura pomifera agglutinin is a tetrameric plant seed lectin with high affinity for the tumor-associated T-antigen disaccharide, Gal beta 1,3GalNAc alpha, and hence for many O-linked glycopeptide structures, Unlike members of most lectin families, it lacks both metal ions and Cys residues. The structure of its complex with Gal beta 1,3GalNAc was determined to 2.2 Angstrom by first using multiwavelength anomalous diffraction with a lead derivative of the native protein, and then using molecular replacement with the unrefined structure as a model to solve the structure of the complex. The subunits share the beta-prism architecture and three-fold pseudo-symmetry of the related lectin jacalin, with the 21-residue beta-chains in the center of the tetramer, Interactions with the GalNAc predominate in the binding of the disaccharide. It forms a network of H-bonds with only one side chain, from an Asp residue, the amino group of the N-terminal Gly of the alpha-chain, and peptide backbone atoms of two aromatic residues. The Gal moiety does not H-bond directly with residues in the same monomer, i.e. there is no true subsite for it, but there are interactions through two water molecules. In the crystal, it interacts with residues in the binding site of an adjacent tet tetramer. The minimum energy conformation expected for the disaccharide is retained, despite its mediating the tetramer tetramer interactions in the crystal packing. The resulting lattice is comparable to those seen for complexes of other lectins with branched glycopeptides.

Author Lien, T. P., H. Ripperger, A. Porzel, T. Van Sung and G. Adam

Title Constituents of Artocarpus tonkinensis

Year 1998

Source title Pharmazie

Reference 53(5): 353-353

Abstract

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Author Lim, S. B., M. S. Kanthimathi and O. H. Hashim

Title Effect of the mannose-binding Artocarpus integer lectin on the cellular proliferati

Year 1998

Source title Immunological Investigations

Reference 27(6): 395-404

Abstract

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Author Mitra, S. K. and D. Mani

Title Conservation and utilisation of genetic resources in jackfruit (Artocarpus heteroph

Year 1998

Source title International Horticultural Congress, Brussels

Reference Toronto, 229-232 pp

Abstract

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Author Mohan, S. M., P. Remani and A. Rajan

Title Jack fruit (Artocarpus integrifolia) lactin as a histochemical marker for ethmoid ca

Year 1998

Source title International Journal of Animal Sciences

Reference 13(2): 165-168

Abstract

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Author Moreira, R. A., C. C. Castelo-Branco, A. C. O. Monteiro, R. O. Tavares and L. M.

Title Isolation and partial characterization of a lectin from Artocarpus incisa L. seeds

Year 1998

Source title Phytochemistry

Reference 47(7): 1183-1188

Abstract

-

Author Nomura, T., Y. Hano and M. Aida

Title Isoprenoid-substituted flavonoids from Artocarpus plants (Moraceae)

Year 1998

Source title Heterocycles

Reference 47(2): 1179-1205

Abstract

-

Author Parenti, P., A. Pizzigoni, G. Hanozet, E. H. Hakim, L. Makmur, S. A. Achmad and

Title A new prenylated flavone from Arctocarpus champeden inhibits the k+-dependent

Year 1998

Source title Biochemical and Biophysical Research Communications

Reference 244(2): 445-448

Abstract

The effect of some flavonoids on the K+-dependent and K+-independent leucine uptake into brush border membrane vesicles from Bombyx mori larval midgut was investigated. Among the compounds tested, cyclochampedol, recently purified from Artocarpus champeden, was able to inhibit in micromolar range the leucine transport. The inhibition occurred both in the absence and in the presence of potassium and was not affected by leucine concentration. The apparent K-i was 0.25 mM. Cyclochampedol represents the first noncompetitive inhibitor of an amino acid transport system in Lepidoptera. The relevance of this result is discussed. (C) 1998 Academic Press.

Author Ramos, M. V., L. R. Bomfim, F. M. B. Da Silva, A. H. Sampaio and R. A. Moreir

Title Studies on the carbohydrate-binding specificity of the lectin from Artocarpus incis

Year 1998

Source title Physiology and Molecular Biology of Plants

Reference 4(2): 157-163

Abstract

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Author Rudiger, H.

Title Plant lectins - more than just tools for glycoscientists: Occurrence, structure, and

Year 1998

Source title Acta Anatomica

Reference 161(1-4): 130-152

Abstract

Plant lectins are easily available, fairly stable and suitable for many kinds of chemical modification. Thus, they have become important tools in glycosciences. In the present review, it is attempted to throw light upon aspects of lectinology that deal with their natural occurrence, biosynthesis, structure, binding specificities and hypotheses about their biological functions.

Author Sakamoto, M., M. Dias-Baruffi, R. Santos-de-Oliveira, F. Q. Cunha and M. C. Ro

Title An intravascular chemoattractant lectin inhibits neutrophil migration

Year 1998

Source title Glycoconjugate Journal

Reference 15(5): 531-533

Abstract

KM+, a lectin purified from Artocarpus integrifolia seeds, is an attractant for neutrophils, and has properties similar to fMLP, IL-8 and MNCF. The endogenous lectin MNCF, inhibits carrageenan-induced neutrophil migration when intravenously administered in rats. In an attempt to mimic the activity of MNCF with KM+, we determined the effect of intravenous (iv) injection of KM+ (5 mu g) on neutrophil migration to the peritoneal cavity of Wistar rats induced by KM+ (50 mu g, intraperitoneal, ip), fMLP (5 ng, ip) and carrageenan (300 mu g, ip). Initially we evaluated the effect of the time interval between intravenous and intraperitoneal administration of KM+. The intervals ranged from 20 to 120 min and progressively stronger inhibition was observed with increasing time intervals up to a maximum of 60 min, with effect decreasing thereafter. With injections at the optimum interval of 60 min, we observed that KM+ inhibited KM+- and carrageenan-induced neutrophil migration by 72%, and fMLP-induced migration by 56%. White cell counts for Wistar rats that only received KM(+)iv, performed at 0 to 120 min intervals after injection, revealed early neutropenia lasting 60 min, followed by a marked increase in circulating neutrophils that reached a maximum of twice the initial levels within 90 min and after 120 min returned to levels near to that observed before intravenous administration of KM+. These results indicate that when KM+ is present in the intravascular space, it produces an inhibitory effect on neutrophil migration similar to that caused by the intravenous administration of other chemoattractants, regardless of whether they act through a mechanism independent of carbohydrate recognition, as does IL-8, or are dependent on carbohydrate recognition, like MNCF.

Author Shimizu, K., R. Kondo, K. Sakai, S. H. Lee and H. Sato

Title The inhibitory components from Artocarpus incisus on melanin biosynthesis

Year 1998

Source title Planta Medica

Reference 64(5): 408-412

Abstract

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Author Thrinh Phuong, L., H. Ripperget and A. Porzel

Title Tran van sung; adam, g.: Constituents of Artocarpus tonkinensis

Year 1998

Source title Pharmazie

Reference 53(5): 353

Abstract

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Author Worrell, D. B., C. M. S. Carrington and D. J. Huber

Title Growth, maturation and ripening of breadfruit, Artocarpus altilis (Park.) Fosb

Year 1998

Source title Scientia Horticulturae

Reference 76(1-2): 17-28

Abstract

Fruit growth of a seedless, 'white flesh' cultivar of breadfruit [Artocarpus altilis (Park.) Fosb.] was single sigmoidal as measured by diameter, but double sigmoidal when assessed as dry or fresh weight. The first phase of growth was characterised by size generation while the second phase involved major increase in dry weight, mainly in the form of starch accumulation. The fruit required 13-21 weeks to reach full size from the time when the female inflorescence was first detectable in the terminal leaf sheath though sensory tests of cooked fruit revealed that only fruit 15-19 weeks old was acceptable. This age range coincided with maturity indices such as the appearance of white latex on the fruit skin and flattening of the fruit segments and the spur at the centre of these. Skin colour could not be reliably used as a maturity index. Mature fruit produced a monophasic respiratory climacteric, with CO2 production reaching 200 ml kg(-1) h(-1) at 25-30 degrees C. In contrast, peak ethylene production was low (1.5 mu l kg(-1) h(-1)). The respiratory climacteric of fruit harvested at the earliest maturity (13-to-15-week-old fruit) tended to be higher and later than that of fully mature (19-to-21-week-old) fruit.

Author Wu, A. M., J. H. Wu, W. M. Watkins, C. P. Chen, S. C. Song and Y. Y. Chen

Title Differential binding of human blood group sd(a+) and sd(a-) tamm-horsfall glycop

Year 1998

Source title Febs Letters

Reference 429(3): 323-326

Abstract

The binding patterns of human blood group Sd(a+) and Sd(a-) Tamm-Horsfall glycoproteins (THGPs) with respect to four GalNAc specific agglutinins were studied by quantitative precipitin assay (QPA) and enzyme linked lectinosorbent assay (ELLSA). Of the native and asialo Sd(a+) and Sd(a-) THGP tested by QPA and ELLSA, only native and asialo Sd(a+) bound well with Dolichos biflorus (DB,I) and Vicia villosa-B-4 (VVA-B-4), while Sd(a-) THGP reacted poorly with these two lectins, Neither Sd(a+) nor Sd(a-) THGPs reacted with two other GalNAc alpha-anomer specific lectins: Codium fragile subspecies tometosoides and Artocarpus integrifolia. Furthermore, the binding of asialo Sd(a+)THGP-VVA-B-4 and native Sd(a+)THGP-DBA through GalNAc beta --> was confirmed by inhibition assay, These results demonstrate that DBA and VVA-B-4 are useful reagents to differentiate between Sd(a+) and Sd(a-) THGP. (C) 1998 Federation of European Biochemical Societies.

Author Adiga, J. D., B. N. Sathyanarayana, M. M. Khan and H. C. Lohithaswa

Title Effect of cytokinin sources and naa on in vitro shoot proliferation of singapore jac

Year 1997

Source title Myforest

Reference 33 (4): 633-638

Abstract

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Author Aida, M., N. Yamaguchi, Y. Hano and T. Nomura

Title Constituents of the moraceae plants .30. Artonols a, b, c, d, and e, five new isopre

Year 1997

Source title Heterocycles

Reference 45(1): 163-175

Abstract

Five new isoprenylated phenols, artonols A (1), B (2), C (3), D (4), and E (5) were isolated from the bark of Artocarpus communis Forst. (Moraceae), along with four known compounds, artonin E (6), cycloartobiloxanthone (7), artonin K (8), and artobiloxanthone (9). The structures of artonols A, B, C, D, and E were shown to be 1 - 5, respectively, on the basis of spectroscopic data. Artonols A (1) and B (2) have unique structures. These compounds are biogenetically assumed to be derivatives from the flavone derivatives having the dihydrobenzoxanthone skeleton, such as artobiloxanthone (9) .

Author Aida, M., N. Yamaguchi, Y. Hano and T. Nomura

Title Artonols a, b, c, d, and e, five new isoprenylated phenols from the bark of Artocar

Year 1997

Source title Heterocycles

Reference 45(1): 163-176

Abstract

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Author Barik, B., T. Bhaumik, A. K. Dey and A. B. Kundu

Title Triterpenoids of Artocarpus heterophyllus

Year 1997

Source title Journal of the Indian Chemical Society

Reference 74(2): 163-164

Abstract

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Author Campana, P. T., R. A. Moreira and L. M. Beltramini

Title Refolding studies of frutalin, a lectin isolated from artocarpus incisa seeds

Year 1997

Source title European Journal of Cell Biology

Reference 74: 15-15

Abstract

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Author CasteloBranco, C. C., A. C. O. Monteiro, R. E. C. Carlos and R. A. Moreira

Title Artocarpus incisa lectin (frutalin). Influence of the ligand (d-galactose) on the stru

Year 1997

Source title European Journal of Cell Biology

Reference 74: 18-18

Abstract

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Author Chakrabarti, S. and R. K. Pandit

Title Four new eriophyid species (Acari : Eriophyoidea) from north Bengal, India

Year 1997

Source title Acarologia

Reference 38(4): 377-383

Abstract

Four new species of eriophyids collected from North Bengal districts, India are described and figured. They are: Acaricalus artocarpae, infesting Artocarpus lakoocha Roxb.; Colomerus trichodesmae, infesting Trichodesma khasianum Clarke; Neodichopelmus cordiae, infesting Cordia myxa L.; and Cosetacus eupatori, infesting Eupatorium odoratum L.

Author Chowdhury, F. A., M. A. Raman and A. J. Mian

Title Distribution of free sugars and fatty acids in jackfruit (Artocarpus heterophyllus)

Year 1997

Source title Food Chemistry

Reference 60(1): 25-28

Abstract

The free sugars and fatty acids (both free and bound) of different parts of jackfruit (Alrocarpus heterophyllus) were isolated. The sugars and fatty acids were identified and quantified by gas-liquid chromatography as their trimethylsilyl derivatives and methyl esters, respectively. Fructose, glucose and sucrose were found to be the major sugars in all parts of jackfruit, except in the bark, which is devoid of glucose. Capric, myristic, lauric, palmitic, oleic, stearic, linoleic and arachidic acids were found as major fatty acids with varying proportions in different parts of jackfruit. (C) 1997 Published by Elsevier Science Ltd.

Author deOliveira, P. S. L., R. C. Garratt, Y. P. Mascarenhas, L. M. Beltramini, M. C. Ro

Title Crystallization and preliminary crystallographic data of a neutrophil migration-ind

Year 1997

Source title Proteins-Structure Function and Genetics

Reference 27(1): 157-159

Abstract

The tetrameric KM+ lectin from the seeds of Artocarpus integrifolia has, when compared to other plant lectins, the singular property of directly inducing neutrophil migration into the peritoneal cavity or into the air pouch of rats. This protein crystals have been grown and they belong to the orthorhombic system with space group C222(1). The unit cell parameters are a = 54.4 Angstrom, b = 127.9 Angstrom and c = 99.8 Angstrom. A native diffraction dataset to 2.8 Angstrom was collected and an analysis of the self-rotation function has shown the presence of only one independent non-crystallographic a-fold axis orthogonal to the crystal b-axis, compatible with a dimer in the asymmetric unit. Proteins 27:157-159 (C) 1997 Wiley-Liss, Inc.

Author Dunstan, C. A., Y. Noreen, G. Serrano, P. A. Cox, P. Perera and L. Bohlin

Title Evaluation of some Samoan and Peruvian medicinal plants by prostaglandin biosy

Year 1997

Source title Journal of Ethnopharmacology

Reference 57(1): 35-56

Abstract

In our ongoing program to find new anti-inflammatory compounds, 58 extracts from 46 different medicinal plant species, used in treatment of inflammatory disorders - 38 plants from the traditional medicine of Western Samoa and eight originating from the indigenous medicine of the Shipibo-Conibo tribe of Peruvian Amazonia - were evaluated. The ability of all extracts to inhibit cyclooxygenase-1 catalysed prostaglandin biosynthesis in vitro was examined. Of the plant species tested 14 showed moderate to strong inhibition; including 11 Samoan and three Peruvian species. Further, 12 Samoan and all eight Peruvian species were investigated on their inhibitory activity of ethyl phenylpropiolate induced rat ear oedema in vivo Significant activity was shown by 10 of the Samoan and by all eight Peruvian species. An additional evaluation of the most active species was provided through a compilation of existing literature documenting traditional medicinal uses, pharmacological activity and chemical constituents. Several known cyclooxygenase-l inhibitors were reported to which the observed pharmacological activity can be attributed at least partly. The combination of chemical and pharmacological literature data and our experimental data may help to explain the anti-inflammatory use of these species in indigenous medicine. (C) 1997 Elsevier Science Ireland Ltd.

Author El-Sawa, S. F. and R. J. Campbell

Title Influence of controlled pollination on jackfruit (Artocarpus heterophyllus Lam.) p

Year 1997

Source title Interamerican Society for Tropical Horticulture, Guatemala City

Reference [np], 228-235 pp

Abstract

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Author Entwistle, A. C. and N. Corp

Title The diet of Pteropus voeltzkowi, an endangered fruit bat endemic to Pemba Island

Year 1997

Source title African Journal of Ecology

Reference 35(4): 351-360

Abstract

The diet of the Pemba flying fox Pteropus voeltzkowi, a species endemic to the island of Pemba off Tanzania, was investigated. Faecal pellets, ejecta and dropped fruits were collected from under roosts to facilitate dietary analysis. This was supplemented by data from local villagers and school students. The main component of the diet was mango (Mangifera indica), but bats also ate breadfruit (Artocarpus altilis), figs (Ficus spp.), flowers, leaves, and other fruit. Pollen from at least five plant species was also found in faecal pellets. Pteropus voeltzkowi may be one of the only species on the island that disperses larger seeds. The germination rate of bat-ingested seeds was higher than that for seeds from ripe fruit, and this appeared to be linked to selective ingestion of viable seeds by bats.

Author Fischer, E., N. Q. Khang and R. Brossmer

Title The alpha-galactosyl specific lectin from Artocarpus integrifolia distinguishes bet

Year 1997

Source title Biochemistry and Cell Biology-Biochimie et Biologie Cellulaire

Reference 75(2): 171-175

Abstract

A lectin purified from the seeds of the Vietnamese Artocarpus integrifolia distinguishes between the mouse T-cell lymphoma cell lines Eb and ESb, with low and high metastatic potential, respectively. It agglutinates Eb cells as well as human erythrocytes, but not ESb cells or the human colon carcinoma cells HT29. The haemagglutinin is specific for alpha-galactosyl residues and has a molecular mass of 62 kDa.

Author Fischer, E., N. Q. Khang and R. Brossmer

Title The ê-galactosyl specific lectin from Artocarpus integrifolia distinguishes betwee

Year 1997

Source title Biochemistry and Cell Biology

Reference 75(2): 171-175

Abstract

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Author Hatibarua, P., S. Gogoi and A. Mazumder

Title Adventitious rooting in jack fruit (Artocarpus heterophyllus Lam.) air layers induc

Year 1997

Source title Annals of Biology

Reference 13(1): 155-160

Abstract

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Author Hocking, D., G. Sarwar and S. A. Yousuf

Title Trees on farms in Bangladesh .4. Crop yields underneath traditionally managed m

Year 1997

Source title Agroforestry Systems

Reference 35(1): 1-13

Abstract

Seasonal yields of wetland rice and wheat were measured under traditionally-managed field trees of five species in northwestern Bangladesh over four years. There was a variable depression of rice (Oryza sativa) and wheat (Triticum aestivum) yields under all tree species. Yield depression overall ranged from 16% for the light-canopied Acacia catechu to a little over 40% for the dense-canopied Artocarpus heterophyllus and Mangifera indica. Percentage yield depression was independent of agroecological zones, years, and location of the trees on the margins or centrally in a field. Yield depression in the dry season extended further in area than in the wet season; and for most tree species was to some extent alleviated by availability of irrigation. Farmers were well aware of and accepted crop yield losses under different tree species in return for the tree products. Trees with greatest impact on crops yielded products of highest value, mainly fruits and leaf fodder.

Author Islam, M., S. A. Chowdhury and M. R. Alam

Title The effect of supplementation of jackfruit leaves (Artocarpus heterophyllus) and

Year 1997

Source title Asian Australasian Journal of Animal Sciences

Reference 10(2): 206-209

Abstract

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Author Jamaludheen, V., B. M. Kumar, P. A. Wahid and N. V. Kamalam

Title Root distribution pattern of the wild jack tree (Artocarpus hirsutusLamk) as studie

Year 1997

Source title Agroforestry Systems

Reference 35(3): 329-336

Abstract

Root distribution of the wild jack tree (Artocarpus hirsutus) was determined by selective placement of P-32 at various depths and lateral distances from the tree, in Kerala, India. In eight-and-a-half-year-old trees growing on a lateritic site, absorption of P-32 from a lateral distance of 75 cm and 30 cm depth was much greater than from 150 and 225 cm lateral distance and 60 and 90 cm depth. Root activity declined with increasing depth and lateral distance. Most of the physiologically active roots were concentrated within a radius of 75 cm and 30 cm depth, although the tap root might reach even deeper. Possibly, surface accumulation of feeder roots may cause considerable overlap of the tree and crop root zones in intercropping situations. However, as the tree roots seldom extend beyond 2.25 m laterally from the hunk, the effect of overlapping root zones and the associated competitive effects may not be a serious problem for intercropping during the first few years (<10 years after planting) of tree growth.

Author Kanzaki, S., K. Yonemori, A. Sugiura and S. Subhadrabandhu

Title Phylogenetic relationships between the jackfruit, the breadfruit and nine other Art

Year 1997

Source title Scientia Horticulturae

Reference 70(1): 57-66

Abstract

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Author Lim, S. B., C. T. Chua and O. H. Hashim

Title Isolation of a mannose-binding and ige- and igm-reactive lectin from the seeds of

Year 1997

Source title Journal of Immunological Methods

Reference 209(2): 177-186

Abstract

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Author Liu, H. S., C. N. Lin and S. J. Won

Title Antitumor effect of 2,6-di(2,3-epoxypropoxy) xanthone on tumor cell lines

Year 1997

Source title Anticancer Research

Reference 17(2A): 1107-1114

Abstract

2,6-di(2,3-epoxypropoxy)xanthone (EPX), a newly synthesized xanthone derivative, is a potent antitumor agent which is more cytotoxic than the antitumor drug mytomycin C. EPX also demonstrated stronger growth inhibition to T24 (bladder carcinoma with Ha-ras gene mutation) and 212 cells (a NIH/3T3 derivative, transformed by Ha-ras oncogene) than to PLC/PRF/S (hepatoma with normal Ha-ras gene) and NIH/3T3 cells The preferential repression of EPX on the cell proliferation of 212 and T24 cells was further demonstrated by decreasing Ha-ras oncogene expression levels while EPX dosage increased. The drug concentrations for 50% inhibition (IC50) of cell growth, DNA synthesis, Ha-ras oncogene expression and colony formation of T24 and 212 cells are in the same range and lower than the values for RNA and protein synthesis. Moreover, EPX irreversibly reversed 212 cell morphology from a transformed phenotype to a normal one. These data indicate that EPX probably suppresses tumor cell proliferation by inhibiting DNA synthesis and reverses the transformed properties by suppressing Ha-ras gene expression. The mechanisms of biochemical action and cytotoxicity of EPX remain to be determined. However, our data suggest that the EPX-mediated inhibition of cell proliferative capacity of 212 and T24 cells was preceded by a selective down-regulation of Ha-ras oncogene RNA levels. EPX may have the potential to be used broadly against diverse tumors or specifically against Ha-ras oncogene initiated malignancy.

Author Monteiro, A. C. O., C. C. CasteloBranco, L. M. Beltramini and R. A. Moreira

Title Frutalin, a lectin from Artocarpus incisa structure/activity relationships

Year 1997

Source title European Journal of Cell Biology

Reference 74: 64-64

Abstract

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Author Nascimento, M. S. J., H. Cidade, M. Pinto and A. Kijjoa

Title Anticomplementary activity of prenylated flavones from Artocarpus elasticus

Year 1997

Source title Pharmaceutical and Pharmacological Letters

Reference 7(2/3): 135-137

Abstract

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Author Prudhomme, I., E. M. Zhou, M. Traykova, H. Trotter, M. Chan, A. Afshar and M.

Title Production of a baculovirus-derived gp50 protein and utilization in a competitive

Year 1997

Source title Canadian Journal of Veterinary Research-Revue Canadienne De Recherche Veter

Reference 61(4): 286-291

Abstract

The pseudorabies virus (PRV) gp50 envelope glycoprotein gene was cloned and expressed in a recombinant baculovirus. An anti-gp50 Mab (1842) recognized a protein of approximately 40 kDa in immunoblotting assays from infected insect cell lysates, while this product was not present in cells infected with wild-type baculovirus. The recombinant protein was purified by lectin affinity chromatography, utilizing lectins specific for O-linked oligosaccharides (Artocarpus integrifolia and Glycine max), Competitive (c) ELISAs, using either crude or lectin-purified antigen, were devised for the detection of antibodies to PRV in sera, and were capable of monitoring seroconversion by day 14 post-infection, Furthermore, a specificity of 100% and sensitivity of 98 % (crude lysate antigen) or 96% (lectin-purified antigen) was found for a panel of 80 swine sera, using the cELISA, as compared to a serum neutralization (SN) test, These studies demonstrated that recombinant PRV gp50 protein shows promise as a cELISA antigen, for serodetection of PRV.

Author Pushpakumara, D. K. N. G., A. J. Simons and H. P. M. Gunasena

Title Reproductive biology and improvement of Artocarpus heterophyllus in Sri Lanka

Year 1997

Source title Domestication of agroforestry trees in Southeast Asia, Yogyakarta; Indonesia

Reference Morrilton AR, 203-208 pp

Abstract

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Author Saulsbury, F. T.

Title Alterations in the o-linked glycosylation of iga1 in children with Henoch-schonlei

Year 1997

Source title Journal of Rheumatology

Reference 24(11): 2246-2249

Abstract

Objective, To examine O-linked glycosylation of serum IgA1 in children with acute Henoch-Schonlein purpura (HSP). - Methods, The O-linked oligosaccharides of serum IgA1 from 28 children with acute HSP and 26 control children were examined by enzyme immunoassay using plant lectins with well defined carbohydrate binding specificities. The lectins included Artocarpus integrifolia (jacalin), Arachis hypogaea (peanut lectin), and Sambucus nigra (elderberry lectin). Jacalin binds to galactose-N-acetylgalactosamine (Gal-GalNAc). Jacalin interaction with this oligosaccharide is not influenced by the presence of sialic acid on the galactose moiety. Peanut lectin also interacts with Gal-GalNAc, but binding is inhibited if the galactose residue is sialylated. Elderberry lectin binds to N-acetylneuraminic acid (sialic acid). - Results, There was no difference in the binding of jacalin to IgA1 from patients with HSP compared to controls ($p = 0.5$). The binding of peanut lectin to IgA1 was significantly higher in HSP compared to controls ($p = 0.007$). Since peanut lectin binding is inhibited by the presence of sialylated galactose, these results suggest diminished sialic content of the O-linked oligosaccharides of IgA1 in HSP compared to controls. Indeed, the binding of the sialic acid-specific elderberry lectin to IgA1 was significantly lower in HSP compared to controls ($p = 0.004$). - Conclusion. The O-linked oligosaccharides of serum IgA1 from children with acute HSP are deficient in salic acid compared to serum IgA1 from control children.

Author Shimizu, K., R. Kondo and K. Sakai

Title A stilbene derivative from Artocarpus incisus

Year 1997

Source title Phytochemistry

Reference 45(6): 1297-1298

Abstract

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Author Suresh, S., P. G. Rani, J. V. Pratap, R. Sankaranarayanan, A. Surolia and M. Vijay

Title Homology between jacalin and artocarpin from jackfruit (Artocarpus integrifolia)

Year 1997

Source title Acta Crystallographica Section D Biological Crystallography

Reference 53(4): 469-471

Abstract

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Author Taipalensuu, J., A. Falk, B. Ek and L. Rask

Title Myrosinase-binding proteins are derived from a large wound-inducible and repetit

Year 1997

Source title European Journal of Biochemistry

Reference 243(3): 605-611

Abstract

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Author Wang, J. P., S. L. Raung, L. T. Tsao, M. F. Hsu and C. N. Lin

Title Blockade of protein kinase c is involved in the inhibition by cycloheterophyllin of

Year 1997

Source title Naunyn-Schmiedebergs Archives of Pharmacology

Reference 355(5): 551-558

Abstract

Cycloheterophyllin, a prenylflavone, inhibited the superoxide anion (O-2(.-)) generation from formyl-methionyl-leucyl-phenylalanine (fMLP)- and phorbol 12-myristate 13-acetate (PMA)-stimulated rat neutrophils in a concentration-dependent manner with IC50 values of 47.0 +/- 5.0 and 1.7 +/- 0.4 mu M, respectively. Cycloheterophyllin had no effect on O-2(.-) generation in xanthine-xanthine oxidase system and during dihydroxyfumaric acid (DHF) autoxidation. Cycloheterophyllin exerted a concentration-dependent inhibition of neutrophil cytosolic protein kinase C (PKC) and rat brain PKC, but had no effect on porcine heart protein kinase A (PKA). Unlike staurosporine, cycloheterophyllin did not affect the trypsin-treated rat brain PKC. [H-3]Phorbol 12,13-dibutyrate ([H-3]PDB) binding to neutrophil cytosolic PKC was significantly suppressed by cycloheterophyllin. However, cycloheterophyllin had negligible effect on the PMA-induced membrane translocation of PKC-beta and PKC-delta in neutrophils, Moreover, the fMLP-induced [Ca2+](i) elevation and inositol trisphosphate (IP3) formation of neutrophils were not affected by cycloheterophyllin at concentrations which significantly suppressed the O-2(.-) generation. In cell-free system, addition of arachidonate (AA) into the mixture of cytosol and membrane fractions of the resting neutrophils to make NADPH oxidase assembly and activation. Cycloheterophyllin had no effect on O-2(.-) generation in AA-activated cell-free system. These results suggest that the suppression of PKC activity through the interaction with the regulatory region of PKC is involved in the inhibition by cycloheterophyllin of the O-2(.-) generation in rat neutrophils.

Author Wetprasit, N. and M. Chulavatnatol

Title Determination of sugar specificity of jackfruit lectin by a simple sugar-lectin bindi

Year 1997

Source title Biochemistry and Molecular Biology International

Reference 42(2): 399-408

Abstract

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Author Wongkham, C., L. Promdee, S. Wongkham and B. Sripa

Title Assessment of stages of mouse spermatozoa using Artocarpus lakoocha agglutinin

Year 1997

Source title Faseb Journal

Reference 11(9): A1247-A1247

Abstract

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Author Wu, A. M., S. C. Song, S. Sugii and A. Herp

Title Differential binding properties of gal/galnac specific lectins available for characte

Year 1997

Source title Indian Journal of Biochemistry and Biophysics

Reference 34(1-2): 61-71

Abstract

Differentiating the binding properties of applied lectins should facilitate the selection of lectins for characterization of glycoreceptors on the cell surface. Based on the binding specificities studied by inhibition assays of lectin-glycan interactions, over twenty Gal and/or GalNAc specific lectins have been divided into eight groups according to their specificity for structural units (lectin determinants), which are the disaccharide as all or part of the determinants and of GalNAc alpha 1-->Ser (Thr) of the peptide chain. A scheme of codes for lectin determinants is illustrated as follows: (1) F (GalNAc alpha 1-->3GalNAc), Forssman specific disaccharide - Dolichos biflorus (DBL), Helix pomatia (HPL) and Wistaria floribunda (WFL) lectins. (2) A (GalAc alpha 1-->3Gal), blood group A specific disaccharide-Codium fragile subspecies tomentosoides (CFT), Soy bean (SBL), Vicia villosa-A(4) (VVL-A(4)), and Wistaria floribunda (WFL) lectins. (3) Tn (GalNAc alpha 1-->Ser (Thr) of the protein core) - Vicia villosa B-4 (VVL-B-4), Salvia sclarea (SSL), Maclura pomifera (MPL), Bauhinia purpurea alba (BPL) and Artocarpus integrifolia (Jacalin, AIL). (4) T (Gal beta 1-->3GalNAc), the mucin type sugar sequences on the human erythrocyte membrane(T alpha), T antigen or the disaccharides at the terminal nonreducing end of gangliosides(T beta) - Peanut (PNA), Bauhinia purpurea alba (BPL) Maclura pomifera (MPL), Sophora japonica (SJL), Artocarpus lakoocha (Artocarpin) lectins and Abrus precatorius agglutinin (APA).(5) I and II (Gal beta 1-->3(4)GlcNAc) the disaccharide residue at the nonreducing end of the carbohydrate chains derived from either N- or O-glycosidic linkage - Ricinus communis agglutinin (RCA,), Datura stramonium (TAL, Thorn apple), Erythrina eristagalli (ECL, Coral tree), and Geodia cydonium (GCL). (6) B (Gal alpha 1-->3Gal), human blood group B specific disaccharide-Griffonia (Bandeiraea) simplicifolia B-4 (GSI-B-4). (T) E (Gal alpha 1-->4Gal), receptors for pathogenic E. coli agglutinin, Shiga toxin and Mistletoe toxic lectin-I (ML-I) and abrin-a.

Author Wu, C. C. and L. L. KuoHuang

Title Calcium crystals in the leaves of some species of Moraceae

Year 1997

Source title Botanical Bulletin of Academia Sinica

Reference 38(2): 97-104

Abstract

The type, morphology, and distribution of calcium oxalate and calcium carbonate crystals in mature leaves of nine species (eight genera) of Moraceae were studied. All the studied species contain calcium crystals. Based on types of crystals, these species can be classified into three groups: (a) species with only calcium oxalate: Artocarpus altilis and Cudrania cochinchinensis; (b) species with only calcium carbonate: Fatoua pilosa and Humulus scandens; and, (c) species with both calcium oxalate and calcium carbonate: Broussonetia papyrifera, Ficus elastica, Ficus virgata, Malaisia scandens, and Morus australis. The calcium oxalate crystals were mainly found as druses or prismatic crystals. Druses were located in the crystal cells of both mesophyll and bundle sheath, but prismatic crystals were found only in cells of the bundle sheath. All calcium carbonate cystoliths were located in the epidermal lithocysts, and the types of lithocysts were related to the number of epidermal layers, i.e. hair-like lithocysts in uniseriate epidermis and papillate lithocysts in multiseriate epidermis.

Author Wuthrich, B., A. Borga and L. Yman

Title Oral allergy syndrome to jackfruit (Artocarpus integrifolia)

Year 1997

Source title Allergy

Reference 52(4): 428-431

Abstract

A 30-year-old man from the Philippines with pollen allergy noted the appearance of oral allergy syndrome (GAS) after eating raw apple, raw peach, raw celery, and, recently, jackfruit (Artocarpus integrifolia). a tropical fruit which belongs to the Moraceae family (mulberry) and to the genus Artocarpus (breadfruit tree). Despite the patient's multiple sensitization in skin prick tests and in the Pharmacia CAP System to birch, grass, mugwort pollen, related fruits and vegetables, and jackfruit, in RAST-inhibition studies neither rBet v 1 nor rBet v 2 (profilin). the well-known cross-reacting allergenic components in GAS, could inhibit the specific IgE response to jackfruit. Whether the reaction to jackfruit is specific or whether other pollen-related, cross-reacting allergenic components exist should be investigated further.

Author Achmad SA; Hakim EH; Juliawaty LD; Makmur L; Suyatno; Aimi N; Ghisalbert

Title A new prenylated flavone from Artocarpus champeden

Year 1996

Source title Journal of Natural Products

Reference 59(9): 878-879

Abstract

A new prenylated flavone, named cyclochampedol (1), together with four known triterpenes-cycloeucalenol, glutinol, cycloartenone, and 24-methylenecycloartanone-as well as beta-sitosterol were isolated from Artocarpus champeden. The structure of the new compound was determined on the basis of spectral evidence and by comparison with known related compounds. Compound 1 is active in the brine shrimp lethality assay.

Author Aida, M., Y. Yamagami, Y. Hano and T. Nomura

Title Formation of dihydrobenzoxanthone skeleton from 3-isoprenylated 2',4',5'-trioxyg

Year 1996

Source title Heterocycles

Reference 43(12): 2561-2565

Abstract

Photoreaction of artonin E (1), 3-isoprenylated 2',4',5'-trioxygenated flavone, produced artobiloxanthone (2) and cycloartobiloxanthone (3). Furthermore, the treatment of artonin E (1) with a radical reagent (DPPH) resulted in the same products. These findings support that the flavone derivatives having the dihydrobenzoxanthone skeleton are biogenetically derived from the 3-isoprenylated 2',4',5'-trioxygenated flavones through the phenol oxidative cyclization.

Author Asaduzzaman, S. M.

Title Jackfruit (Artocarpus heterophyllus Lam.): An ideal species for homestead agrofo

Year 1996

Source title Resource Inventory Techniques to Support Agroforestry and Environment; IUFR

Reference Chandigarh India, 85-94 pp

Abstract

Author Barron, D. and R. K. Ibrahim

Title Isoprenylated flavonoids - a survey

Year 1996

Source title Phytochemistry

Reference 43(5): 921-982

Abstract

The structural variation of isoprenylated flavonoids, including the chalcones, flavones and flavonols, as well as their dihydro derivatives are reviewed. Emphasis is mainly directed to the modification of the side attachments arising from C-5, C-10, or C-15 groups, and the frequency of their occurrence among the different classes of flavonoids. Some aspects related to their biosynthesis and enzymology, as well as their biological/pharmacological activities are also discussed. The natural occurrences of the various classes of isoprenylated flavonoids are tabulated as part of this review.

Author Blasco, E., L. DoNgoc, P. Aucouturier, J. L. Preudhomme and A. Barra

Title Mitogenic activity of new lectins from seeds of wild artocarpus species from Viet

Year 1996

Source title Comptes Rendus de l'Academie des Sciences Serie Iii-Sciences De La Vie-Life Sc

Reference 319(5): 405-409

Abstract

Proliferative response of human peripheral blood mononuclear cells (PBMC) stimulated by new lectins purified from seeds of differents Artocarpus species from Vietnam (A, asperulus, A. heterophyllus, A, masticata, A. melinoxylus, A. parva and A. petelotii) was studied and compared to those of the lectin jacalin purified from jackfruit (A. heterophyllus) seeds collected in the island La Reunion. All lectins stimulated human PBMC to proliferate, with a variable efficiency of the mitogenic activity. Phenotypic analysis of cells recovered after 7 day-cultures showed that these lectins mostly stimulated CD4(+) T lymphocytes. These results suggest that these lectins from different Arrocarpus species are similar in terms of their mitogenic activity although their structural features are not identical.

Author Bosman, H. G., A. A. Ademosun and H. A. G. KoperLimbourg

Title Goat feeding practices and options for improvement in six villages in southwester

Year 1996

Source title Small Ruminant Research

Reference 19(3): 201-211

Abstract

Two village surveys were carried out in six villages in southwestern Nigeria to assess goat feeding under traditional management ranging from free roaming to permanent confinement. Three of the villages are located in the lowland rainforest zone (FZ) and three in transition between FZ and the derived savannah (TZ). Cassava products (tuber and peel) and maize offal (a by-product from local maize processing) were the most frequently used feeds. In FZ, breadfruit (Artocarpus altilis) was also important. There were more feeds in FZ than in TZ. DM digestibilities of the most frequently used feeds were: cassava: 89+/-2 (%+/-SE); breadfruit: 88+/-2 and maize offal: 75+/-1. Of these feeds only maize offal had a high CP content (19%). Under free roaming, considerable amounts of feed were given (29-49 g kg(-0.75) day(-1)); however, CP content was low (7-10%). The animals may have balanced their diet through scavenging and browsing. Larger amounts were offered to permanently confined stock (70 g kg(-0.75) day(-1)), but CP content was low (10%); this may have limited weight gain. Some feeds frequently reported to be fed did not contribute much quantitatively. This shows that care must be taken when quantitatively interpreting the results of a qualitative survey. It is concluded that Gliricidia sepium and Leucaena leucocephala could replace maize offal and/or increase the total amount of feed offered per animal. Suitability appeared to depend on the labour needed to harvest and feed browse, cost of maize offal and value of the extra production. Within the socio-economic setting ct thr time of !he survey, feeding small amounts of browse to balance protein-deficient diets seemed the most attractive option. Feeding larger amounts of browse or using browse to replace maize offal seems to be feasible only if harvesting and feeding can be combined with other on-farm activities.

Author Dharmasena KH; Wijeratne M

Title Analysis of nutritional contribution of homegardening

Year 1996

Source title Tropenlandwirt

Reference 97(2): 149-158

Abstract

The purpose of this paper is to examine the contribution of homegarden products to the food and nutrition of the Sri Lankan's diet. This study was carried out in Mapalana and Radawela, two villages of the Matara district in Southern Sri Lanka. Thirty families from each village were randomly selected and information was gathered using a pretested questionnaire. Based on this investigation, the following findings can be highlighted. - Average homegarden size in Mapalana and Radawela was found to be as 0.7 ac. and 0.5 ac., respectively. The corresponding monthly average income was Rs. 310 and Rs. 162. Coconut (Cocos nucifera), jak (Artocarpus heterophyllus), bread fruit (Artocarpus incisa), mango (Mangifera indica), guava (Psidium guajava), banana (Musa sapientium), cloves (Syzygium eugenia caryophillus), coffee (Coffea spp.) and pepper (Piper nigrum) are the most common perennials found in both villages. As annual crops sweet potato (Ipomea batatas), manioc (Manihot esculenta), chillies (Capcicum spp.), brinjol (Solanum melongena), and okra (Hemidesnus indicum), are often found in homegardens of both villages. - Almost all the homegarden products are for household consumption while major parts of the production of cloves, coffee, and pepper were sent to the local market. At Mapalana, homegarden products claim a share of 12 % of the recommended per capita calorie requirement for an average person in Sri Lanka, and 14 % in Radawela. Contribution of protein to the daily per capita protein requirement from homegarden products is very low at only about 5.8 % and 8.4 % at Mapalana and Radawela, respectively. The above calorie and protein supplies come from approximately 50 % of the land extent under homegardens at both villages. Further, cropping intensity of homegardens at Mapalana was 53 % and 69 % at Radawela. - This study demonstrates that there is a potential to increase the homegarden food production by launching programmes on technical assistance and effective utilisation of existing resources. Efforts should be made to increase the productivity of land resource because a considerable portion of land is being under utilised in this fanning system.

Author Fukai, T. and T. Nomura

Title Variations in the chemical shift of benzylic methylene carbon of prenyl group on

Year 1996

Source title Heterocycles

Reference 42(2): 911-941

Abstract

C-13 Nmr examination of 377 kinds of heterocyclic prenyl(geranyl)phenols has shown that the chemical shift of the benzylic methylene signal of prenyl (geranyl) group (C1) was depended upon the substituents located at the adjacent positions. The prenyl (geranyl) groups could be classified into the six types and the chemical shifts of the C1 signal were observed in the restricted range specific to each type. The classification of the chemical shift of the C1 signal is useful for the structure determination of complex heterocyclic prenyl(geranyl)phenol. The chemical shifts of the C1 signals of these 377 heterocyclic prenyl(geranyl)phenols are listed up.

Author Hiki, Y., H. Iwase, M. Saitoh, Y. Saitoh, A. Horii, K. Hotta and Y. Kobayashi

Title Reactivity of glomerular and serum iga1 to jacalin in iga nephropathy

Year 1996

Source title Nephron

Reference 72(3): 429-435

Abstract

To analyze O-linked oligosaccharides (O-glycans) in the hinge region of IgA1 in IgA nephropathy (IgAN), the reactivity of IgA1 to jacalin, which specifically binds to O-glycans, was investigated. Initially, renal biopsy specimens from 5 patients with IgAN and 3 patients with other renal diseases were investigated in an immunofluorescence study with jacalin, monoclonal antihuman IgA1 and IgA2 antibodies. All of the renal biopsy specimens of IgAN and none of other renal diseases were positively stained by both FITC-labeled jacalin and monoclonal anti-IgA1 antibody. The glomerular staining patterns of FITC-jacalin were similar to those of the monoclonal anti-IgA1 antibody. IgA2 was negative in all specimens. Based on the positive reactivity of deposited IgA1 to jacalin, the binding ability of serum IgA1 to jacalin was evaluated by inhibition assay using D-galactose in patients with IgAN (n = 58), other primary glomerulonephritides (PGN) (n = 41), and healthy controls (n = 52). The frequencies of the patients with serum IgA1 having a high affinity for jacalin were significantly greater in IgAN (19/58, 32.8%) compared with the healthy controls (2/52, 3.8%) and other PGN (4/41, 9.8%). These results suggested that the increased reactivity of O-glycan(s) in the IgA1 hinge region to jacalin is due to an unusual glycosylation of serum IgA1 in IgAN.

Author Hocking, D., A. Hocking and K. Islam

Title Trees on farms in Bangladesh .3. Farmers' species preferences for homestead trees

Year 1996

Source title Agroforestry Systems

Reference 33(3): 231-247

Abstract

The most common trees on farm homesteads in Bangladesh were bamboo (several spp.), jackfruit (Artocarpus heterophyllus), mango (Mangifera indica), betelnut (Areca carechu), and jujube (Zizyphus jujube) in all agroecological zones studied. There were regional differences in the less common species. Species for new homestead planting were chosen mainly by women and tended to include indigenous fruit trees and a few exotics of high timber value. Choices were later influenced by new experience with exotic tree species and by perceptions from secondary information sources. Farmer-managed action-research was used to test the survival and performance of new trees planted under the Village and Farm Forestry Programme (VFFP). The main factors influencing tree survival were the role of women in selection of species and planting site, the degree of personal attention paid to aftercare by the owner, and the quality and size of the planting stock. Biophysical factors and agroecological zones were unimportant. Main recorded causes of tree mortality were, in order of importance: damage by livestock, pests or diseases, physical damage by people (mainly children playing), and drought. Cause of death could not be attributed in about 35% of mortality, suggesting that the recorded causes should be treated with caution.

Author Kamaluddin, M., M. Ali and M. K. Bhuiyan

Title Effects of auxin on rooting of cuttings and growth of steckings of jackfruit (Artoc

Year 1996

Source title Chittagong University Studies Part 2

Reference 2 (1): 71-76

Abstract

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Author Kijjoa, A., H. M. Cidade, M. M. M. Pinto, M. J. T. G. Gonzalez, C. Anantachoke,

Title Prenylflavonoids from Artocarpus elasticus

Year 1996

Source title Phytochemistry

Reference 43(3): 691-694

Abstract

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Author Kuizenga, A., N. J. VanHaeringen, F. Meijer and A. Kijlstra

Title Analysis of human tear fluid components, inhibiting protein adhesion to plastic su

Year 1996

Source title Experimental Eye Research

Reference 63(3): 319-328

Abstract

In a previous paper we reported the presence of components in human tear fluid that block the interaction of proteins with plastic surfaces, interfering with tear protein ELISA and proposed the term coating inhibiting activity. The purpose of the study presented here was to further analyse these components. - Coating inhibitory activity in human reflex tears was analysed by lectin affinity chromatography, using the agarose bound lectin Artocarpus integrifolia agglutinin (Jacalin), gel filtration, sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE), blotting and Jacalin staining. For coating inhibitory activity assay in experimental tear samples, the binding of the protein Avidin-conjugated horseradish peroxidase to the polystyrene surface of ELISA micro-titer plate wells, preincubated with the experimental tear samples was measured. In addition, tears were incubated with scrapings of the ELISA plates used in the assay and with six different types of contact lenses (two rigid gas permeable and four hydrogel soft contact lenses) for analysis of adsorbed components. - Lectin affinity chromatography of tears yielded a Jacalin-binding and a non-Jacalin-binding preparation, both exhibiting coating inhibitory activity but representing chemically different preparations as observed by SDS-PAGE. After performing gel filtration, coating inhibitory activity eluted with similar retention in both preparations. In fractions exhibiting activity, tear proteins of low molecular weight (< 40 kDa) were detected. Among these, two Jacalin-binding glycoproteins were detected; a major component of approximately 28 kDa and a somewhat smaller minor component. All low molecular weight components were also detected on the scrapings, incubated with tears. The possibility that coating inhibitory activity in tears might reside in a component of larger molecular size can however not be excluded. The human tear proteins secretory Immunoglobulin A. lactoferrin and lysozyme are not involved in coating inhibition. On one of the two rigid gas permeable contact lenses incubated with the tears, the 28 kDa glycoprotein was detected. - From the data obtained in our study we conclude that coating inhibitory activity in tears seems to be associated with multiple components of low molecular weight. (C) 1996 Academic Press

Author Lin, C. N., C. M. Lu, H. C. Lin, S. C. Fang, B. J. Shieh, M. F. Hsu, J. P. Wang, F.

Title Novel antiplatelet constituents from formosan moraceous plants

Year 1996

Source title Journal of Natural Products

Reference 59(9): 834-838

Abstract

Sixteen constituents from Formosan Moraceous plants were tested for their antiplatelet activities in rabbit platelet suspension and human platelet-rich plasma. Cycloartocarpin A, cycloheterophyllin, broussochalcone A, kazinol A, broussoaurone A, and braussoflavonol F showed strong inhibition of arachidonic acid (AA)-induced platelet aggregation. Of the compounds tested, broussochalcone A exhibited the most potent inhibition of platelet aggregation induced by AA (IC50 = 6.8 mu M). The antiplatelet effects of cycloheterophyllin, broussochalcone A, kazinol B, broussoaurone A, and broussoflavonol F are partially due to an inhibitory effect on cyclooxygenase.

Author Lin, C. N., P. H. Chiu, S. C. Fang, B. J. Shieh and R. R. Wu

Title Revised structure of broussoflavonol g and the 2d nmr spectra of some related pre

Year 1996

Source title Phytochemistry

Reference 41(4): 1215-1217

Abstract

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Author MarquesSouza, A. C., C. D. Moura and B. W. Nelson

Title Pollen collected by Trigona williana (Hymenoptera: Apidae) in Central Amazonia

Year 1996

Source title Revista de Biologia Tropical

Reference 44(2A): 567-573

Abstract

Pollen was obtained and identified from corbiculae of Trigona williana worker bees over a one year period at the INPA campus in the city of Manaus. Ranked by number of pollen grains, the dominant plant familes were: Arecaceae, Melastomataceae, Myrtaceae, Caricaceae, Moraceae and Malpighiaceae. Dominant plant species were Cocos nucifera, Maximiliana martiana, Cassia sp., Carica papaya, Bellucia grossularioides, Artocarpus incisa and Stachytarpheta cayennensis. Fewer plant species were exploited in the rainy season than in the dry season.

Author McLean, S., W. F. Reynolds, W. F. Tinto, W. R. Chan and V. Shepherd

Title Complete c-13 and h-1 spectral assignments of prenylated flavonoids and a hydro

Year 1996

Source title Magnetic Resonance in Chemistry

Reference 34(9): 719-722

Abstract

Three prenylated flavonoids and a hydroxy fatty acid were isolated from the leaves of the seedless variety of Artocarpus communis, but only one from the leaves of the seeded variety. Two of these compounds are known to show great promise as pharmaceutical and agricultural chemicals. The H-1 and C-13 NMR spectra were completely assigned by using a combination of 2D NMR experiments which included H-1-H-1 COSY, HETCOR and FLOCK sequences.

Author Menon, S. and F. E. Poirier

Title Lion-tailed macaques (Macaca silenus) in a disturbed forest fragment: Activity pat

Year 1996

Source title International Journal of Primatology

Reference 17(6): 969-985

Abstract

We describe the activity patterns and time budget of a feral group of lion-tailed macaques that were confined to a disturbed forest fragment of 65 ha and compare the results with those obtained for groups in protected forests. The degraded nature of the study site was reflected in low tree densities, low specific diversity, gaps in the girth distribution of trees, and frequent disturbance by humans. The study group of 43 subjects was Mice as large as lion-tailed macaque groups in protected habitats. They spent the most time ranging (34.0%) followed by foraging (23.7%) feeding (17.9%), resting (16.0%) and other activities such as social interactions (8.4%). Monthly variations are significant for all activity categories except ranging. Times spent resting and foraging are negatively correlated (r = -0.5) and show significant seasonal differences. Foraging time was highest from September to November, when key food sources such as Cullenia and Artocarpus were absent or marginally available. The study group spent most time (40.4%) at canopy levels between 21 and 30 m. They spent more time each day ranging than resting or feeding and more time terrestrially compared with groups in protected forests. Large group size, poor habitat quality, and seasonal variation in food availability were the major variables affecting their time budget, and these variables accounted for differences from the time budgets of groups in protected forests.

Author Ravindran, V., G. Ravindran and R. Sivakanesan

Title Evaluation of the nutritive value of jackseed (Artocarpus heterophyllus) meal for

Year 1996

Source title Journal of Agricultural Science

Reference 127(1): 123-130

Abstract

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Author Sankaranarayanan, R., K. Sekar, R. Banerjee, V. Sharma, A. Surolia and M. Vijay

Title A novel mode of carbohydrate recognition in jacalin, a Moraceae plant lectin with

Year 1996

Source title Nature Structural Biology

Reference 3(7): 596-603

Abstract

Jacalin, a tetrameric two-chain lectin (66,000 M(r)) from jackfruit seeds, is highly specific for the tumour associated T-antigenic disaccharide. The crystal structure of jacalin with methyl-alpha-D-galactose reveals that each subunit has a three-fold symmetric beta-prism fold made up of three four-stranded beta-sheets. The lectin exhibits a novel carbohydrate-binding site involving the N terminus of the alpha-chain which is generated through a post-translational modification involving proteolysis, the first known instance where such a modification has been used to confer carbohydrate specificity. This new lectin fold may be characteristic of the Moraceae plant family. The structure provides an explanation for the relative affinities of the lectin for galactose derivatives and provides insights into the structural basis of its T-antigen specificity.

Author Sato, M., S. Fujiwara, H. Tsuchiya, T. Fujii, M. Iinuma, H. Tosa and Y. Ohkawa

Title Flavones with antibacterial activity against cariogenic bacteria

Year 1996

Source title Journal of Ethnopharmacology

Reference 54(2/3): 171-176

Abstract

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Author Seidemann, J.

Title Description of exotic fruits . Part ii. Nangka (Artocarpus heterophyllus Lam)

Year 1996

Source title Deutsche Lebensmittel-Rundschau

Reference 92(3): 83-90

Abstract

Detailed description of the morphological and anatomical characteristics of India, Sri Lanka originating, in Brazilia and of Caribic Island cultivated Jackfruit tree (Artocarpus heterophyllus Lam., Moroidaceae family). The quality determining components especially the contained starch are described as well utilization as food, particulars vegetable (pulp), fruit and as wood plants. In case of suspected falsification of the jackfruit from the bread fruit (Artocarpus incisa L.) or their starches it is difficult to distinctiate. - Concluding, more Artocarpus species, used as food, are collected in a list.

Author Singh UV

Title Conservation of forest genetic resource - an ex-situ management of secondary fore

Year 1996

Source title Indian Forester

Reference 122(9): 787-794

Abstract

Ex-situ management for the conservation of germplasm is one of the economic and socially accepted land use methods. Phenotypically superior germplasm for various economically valued species (fruit, timber and fuelwood yielding) was selected from various states in India and multiplied through vegetative reproduction. The trees/clones selected included the species Tamarindus indica, Artocarpus integrifolius [A. heterophyllus], Syzygium cumini, Santalum album, Casuarina equisetifolia, Eucalyptus hybrid [E. tereticornis], Feronia elephantum [Limonia acidissima], Emblica officinalis [Phyllanthus emblica], Tectona grandis, Semecarpus anacardium, Dalbergia sissoo, Zizyphus jujuba [Ziziphus mauritiana], Pterocarpus marsupium, Annona squamosa, Annona mucrinata [A. muricata], Mangifera indica, Anogeissus latifolia, Grewia tiliifolia, Artocarpus lakoocha, Garcinia indica, Pongamia pinnata, Lagerstroemia lanceolata, Terminalia tomentosa and Azadirachta indica. Details are given of the propagation methods used (seedlings, cuttings, grafting and layering, propagules, root suckers) for some of the species. The propagated improved stock was established in a clonal orchard at Gugargatti, Dharwad, Karnataka. Methods of orchard management and maintenance (soil management, fertilizer application, pest control, irrigation, pruning), record keeping requirements, and the advantages of germplasm conservation in clonal orchards are discussed.

Author VanDamme, E. J. M., A. Barre, P. Verhaert, P. Rouge and W. J. Peumans

Title Molecular cloning of the mitogenic mammose/maltose-specific rhizome lectin fro

Year 1996

Source title Febs Letters

Reference 397(2-3): 352-356

Abstract

cDNA clones encoding the mitogenic mannose/maltose-specific lectin from the rhizomes of hedge bindweed (Calystegia sepium) have been isolated and sequenced. Comparison of the deduced amino acid sequence and the molecular weight of the lectin subunit as determined by mass spectrometry indicated that the mature protein comprises the entire open reading frame of the cDNA, which implies that the primary translation product contains no signal peptide and is not proteolytically processed. Searches in the databases revealed sequence homology with the previously described lectins from the taxonomically unrelated Moraceae species Artocarpus integrifolia and Maclura pomifera.

Author Wijaya, C. H., T. A. Ngakan, I. Utama and E. Suryani

Title Exploration of an exotic tropical fruit flavour - optimisation of cempedak (Artocar

Year 1996

Source title Flavour Science: Recent Developments, Reading

Reference Royal Society of Chemistry, 86-89 pp

Abstract

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Author Wuthrich, B., A. Borga and L. Yman

Title Oral allergy syndrome to jackfruit (Artocarpus integrifolia)

Year 1996

Source title New aspects of mite allergy, Freiburg; Germany

Reference Munksgaard, 428-431 pp

Abstract

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Author Adewusi, S. R. A., Akpobome, J. Udio and B. A. Osuntogun

Title Studies on the carbohydrate content of breadfruit (Artocarpus communis Forst) fr

Year 1995

Source title Starch (Staerke)

Reference 47(8): 289-294

Abstract

The proximate composition of the peel, pulp and core of breadfruit revealed that the highest moisture, ash, protein, fat and crude fibre contents can be found in the core while the pulp contained the highest levels of carbohydrate, starch, nitrogen free extract and organic matter. Total free and reducing sugars were highest in the core and lowest in the peel. Sucrose, glucose and fructose followed a similar pattern as the reducing sugars while the flatus-producing oligosaccharides raffinose (0.1%) and stachyose (0.05%) were present in the core. Only raffinose was present (0.05%) in both the peel and the pulp. Extracted starch from the breadfruit pulp was 58% of the total starch content on dry weight basis with minimal levels of ash, fat, protein and 98.6% starch. The extracted starch was 98% pure and contained only 2.3% damaged starch. The starch swelling and solubility properties showed a two-stage pattern while the Brabender amylograms showed patterns very typical of starches from most normal non-waxy cereals. The kinetics of carbohydrate breakdown under different storage conditions showed a biphasic first order, slow in the first 8h and thereafter accelerated. Carbohydrate breakdown as an indicator of fruit deterioration was highest when breadfruit was stored at room temperature, while there was only a little difference in those stored in water, formaldehyde solution or in the refrigerator.

Author Aida, M., Y. Hano and T. Nomura

Title Ficusins a and b, two new cyclic-monoterpene-substituted isoflavones from Ficus

Year 1995

Source title Heterocycles

Reference 41(12): 2761-2768

Abstract

Two new cyclic-monoterpene-substituted isoflavones, ficusins A (1) and B (2) were isolated from the Indonesian moraceous plant, Ficus septica Barm. F. The structures of ficusins A and B were shown to be 1 and 2, respectively, on the basis of spectroscopic data.

Author Akbar, M. A. and M. A. Samad

Title Effect of replacement of green grass by jackfruit leaf (Artocarpus heterophyllus) o

Year 1995

Source title Nutrition of herbivores, Clermont-Ferrand; France

Reference Elsevier, 203 pp

Abstract

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Author Blasco, E., A. Barra, M. Nicolas, J. C. Lecron, J. Wijdenes and J. L. Preudhomme

Title Proliferative response of human cd4(+) t-lymphocytes stimulated by the lectin jac

Year 1995

Source title European Journal of Immunology

Reference 25(7): 2010-2018

Abstract

The Gal beta(1-3)GalNAc-binding lectin jacalin is known to specifically induce the proliferation of human CD4(+) T lymphocytes in the presence of autologous monocytes and to interact with the CD4 molecule and block HIV-1 infection of CD4(+) cells. We further show that jacalin-induced proliferation is characterized by an unusual pattern of T cell activation and cytokine production by human peripheral blood mononuclear cells (PBMC). A cognate interaction between T cells and monocytes was critical for jacalin-induced proliferation, and human recombinant interleukin (IL)-1 and IL-6 did not replace the co-stimulatory activity of monocytes. Blocking studies using monoclonal antibodies (mAb) point out the possible importance of two molecular pathways of interaction, the CD2/LFA-3 and LFA-1/ICAM-1 pathways. One out of two anti-CD4 mAb abolished jacalin responsiveness. Jacalin induced interferon-gamma and high IL-6 secretion, mostly by monocytes, and no detectable IL-2 synthesis or secretion by PBMC. In contrast, jacalin-stimulated Jurkat T cells secreted IL-2. CD3(-) Jurkat cell variants failed to secrete IL-2, suggesting the involvement of the T cell receptor/CD3 complex pathway in jacalin signaling. IL-2 secretion by CD4(-) Jurkat variant cells was delayed and lowered. In addition to CD4, jacalin interacts with the CD5 molecule. Jacalin-CD4 interaction and the proliferation of PBMC, as well as IL-2 secretion by Jurkat cells were inhibited by specific jacalin-competitive sugars.

Author Chandel, K. P. S., R. Chaudhury, J. Radhamani and S. K. Malik

Title Desiccation and freezing sensitivity in recalcitrant seeds of tea, cocoa and jackfrui

Year 1995

Source title Annals of Botany

Reference 76(5): 443-450

Abstract

Investigations were undertaken on the desiccation and freezing sensitivity of recalcitrant seeds of three species: tea [Camellia sinensis (L.) O. Kuntze], cocoa (Theobroma cacao L.) and jackfruit (Arrocarpus hererophyllus Lamk.). All species showed changes in the physiological characteristics, desiccation and freezing sensitivity of both the seed and the embryonic axes with increasing seed maturity. Fully mature seeds of tea, cocoa and jackfruit survived desiccation to 24, 35 and 31 % moisture content, respectively, but at these moisture levels seeds were not able to tolerate freezing in liquid nitrogen (-194 degrees C). Some survival of cryopreservation was, however, achieved for excised embryonic axes of partially and fully-mature tea and jackfruit seeds after drying to 14% moisture content; cocoa axes were totally freezing sensitive at all three stages of physiological maturity studied. Biochemical investigations on fully mature axes after desiccation and freezing showed that the decline in viability with moisture level was associated with increased leachate conductivity, lipid peroxidation products and/or soluble carbohydrates. Evidence for disruption of cell membranes during desiccation and freezing was supported by ultrastructural studies. (C) 1995 Annals of Botany Company

Author Esuoso, K. O. and F. O. Bamiro

Title Studies on the baking properties of non-wheat flours .1. Breadfruit (Artocarpus art

Year 1995

Source title International Journal of Food Sciences and Nutrition

Reference 46(3): 267-273

Abstract

The possibility of producing bread from wheat (WF)/Breadfruit (BF), composite flour has been examined. Wheat flour was supplemented with up to 50% breadfruit flour. Chemical analysis of the breadfruit flour indicated a high starch content (80.9 +/- 0.9%), a fairly high crude fibre and ash contents (1.6 +/- 0.3; 4.2 +/- 0.3%) respectively and a low protein content (4.0 +/- 0.5%). Brabender amylograph pasting viscosity of the various flour and flour blends indicated that apart from the 100% WE 10% BF/WF blends recorded the best pasting characteristics in terms of the starch stability, gelatinization index and set back values. While the 100% BF exhibited the poorest pasting characteristics. Physical characteristics indicated that only 100% WF and 10% BF/WF were free of cracks and crumbliness, 20% and 30% BF/WF had slight cracks, while others are dense and highly cracked. This was reflected on the panellist judgment during sensory evaluation. There was no significant difference at $P < 0.05$ between the control (100% WF) and the composite bread samples up to 30% level of breadfruit flour. Others differed significantly.

Author Hano, Y., N. Itoh, A. Hanaoka and T. Nomura

Title Paratocarpins f - l, seven new isoprenoid-substituted flavonoids from Paratocarpus

Year 1995

Source title Heterocycles

Reference 41(10): 2313-2326

Abstract

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Author Hano, Y., N. Itoh, A. Hanaoka and T. Nomura

Title Paratocarpin-f paratocarpin-l, 7 new isoprenoid-substituted flavonoids from Parat

Year 1995

Source title Heterocycles

Reference 41(10): 2313-2326

Abstract

Two new isoprenoid substituted chalcones, paratocarpins F (1) and G (2), along with five new isoprenoid substituted flavanones, paratocarpins H (3), I (4), J (5), K (6), and L (7), were isolated from the Indonesian moraceous plant, Paratocarpus (=Artocarpus) venenosa Zoll. The structures of paratocarpins F, G, H, I, J, K, and L were shown to be 1, 2, 3, 4, 5, 6, and 7, respectively, on the basis of spectroscopic and chemical evidence.

Author Hano, Y., N. Itoh, A. Hanaoka, Y. Itoh and T. Nomura

Title Constituents of the moraceae plants .22. Paratocarpins-a-e, 5 new isoprenoid-subst

Year 1995

Source title Heterocycles

Reference 41(1): 191-198

Abstract

Five new isoprenoid-substituted chalcones, paratocarpins A (1), B (2), C (3), D (4), and E (5) were isolated from the Indonesian moraceous plant, Paratocarpus (= Artocarpus) venenosa Zoll. The structures of paratocarpins A, B, C, D, and E were shown to be 1, 2, 3, 4, and 5, respectively, on the basis of spectroscopic data.

Author Ito, N., M. Yokota, S. Kawahara, C. Nagaike, Y. Morimura, T. Hirota and T. Mats

Title Histochemical demonstration of different types of poly-n-acetyllactosamine struct

Year 1995

Source title Histochemical Journal

Reference 27(8): 620-629

Abstract

Blood-group-related antigens expressed in papillary carcinomas and other types of neoplasm of the human thyroid glands have been shown to be carried by poly-N-acetyllactosamines containing a linear domain susceptible to endo-beta-galactosidase digestion. To make clear more precisely the backbone poly-N-acetyllactosamine structures, labelled lectins specific to different types of these structures and specific to core structures with beta 1-6GlcNAc branching of N- and O-linked glycoproteins were employed in conjunction with prior endo-beta-galactosidase digestion on formalin-fixed, paraffin-embedded neoplasms of the human thyroid glands. Ln papillary carcinomas, Datura stramonium agglutinin (DSA) and succinyl wheat germ agglutinin (Suc-WGA) reacted most consistently and frequently with papillary carcinomas from all the individuals examined. Pokeweed mitogen (PWM) likewise stained the cells of papillary carcinomas from all the individuals examined, but in some individuals the number of lectin-reactive cells were very small. Lycoperscion esculentum aggultinin (LEA), Solanum tuberosum agglutinin (STA), Phaseolus vulgaris agglutinin L (PHA-L) and Artocarpus integrifolia agglutinin (jacalin) similarly bound to the cancer cells from most of the individuals, and in these cases the number of reactive cells was usually much more restricted than was the case with DSA or PWM. Ln adenoma and other types of carcinoma, such as follicular carcinomas, these lectins specific to poly-N-acetyllactosamine exhibited slight or no reactivity with the cells, whereas PHA-L and jacalin similarly bound to the cells of adenomas and carcinomas from most of the individuals examined. Prior digestion with endo-beta-galactosidase completely eliminated or markedly reduced the reactivity with PWM and LEA in papillary carcinomas. Reactivity with DSA, Suc-WGA, STA, PHA-L and jacalin was slightly reduced or not at all affected by Enzyme digestion. These results confirmed that poly-N-acetyllactosamine species found in papillary carcinomas are quite different from those in other types of thyroid neoplasm, suggesting that at least three different types of poly-N-acetyllactosamine, that is, linear unbranched short and long sequences and highly branched ones are produced in these cells.

Author Kabir, S.

Title The isolation and characterization of jacalin [Artocarpus-heterophyllus (jackfruit)

Year 1995

Source title International Journal of Biochemistry and Cell Biology

Reference 27(2): 147-156

Abstract

Jackfruit extracts contain a protein termed jacalin which possesses diverse biological properties. A detailed analysis of its charge properties has been lacking. The present investigation was initiated to study isoelectric properties of jacalin in detail and to isolate a single isoform of jacalin. Jacalin was isolated from jackfruit extracts by affinity chromatography on immunoglobulin-ii immobilised to Sepharose 4B. Various techniques such as ion-exchange chromatography, isoelectric focusing (IEF) on polyacrylamide gels and preparative liquid IEF, with the Rotofor cell were used. When analysed by IEF on thin layer polyacrylamide gels, jacalin was resolved into 35 bands over a pH range of 5.0-8.5. Upon SDS-PAGE in the second dimension all these charge species gave rise to only two-bands at 12 and 15.4 kDa. The lectin was mostly eluted with 50 and 100 mM sodium chloride when jackfruit extracts were fractionated on an anion-exchange column of DEAE-cellulose. In a single 6 hour run by preparative IEF with the Rotofor cell in the pH range of 3-9.5, it has been possible to isolate pure jacalin fractions containing fewer number of charged isomers. A single jacalin isoform was isolated by subjecting a Rotofor fraction containing fewer charged species to preparative IEF on thin layer polyacrylamide gel and eluting the band of interest from the gel. The isolated jacalin isoform was biologically active as it agglutinated erythrocytes. The study reveals the complexity of jacalin as it exists as multiple charge isomers over a broad pH range. By performing preparative IEF in solution as well as in thin layer polyacrylamide gels, it was possible to isolate a single jacalin isoform with the retention of biological activity.

Author Kabir, S.

Title The isolation and characterisation of jacalin [Artocarpus heterophyllus (jackfruit)

Year 1995

Source title International Journal of Biochemistry and Cell Biology

Reference 27(2): 147

Abstract

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Author Latham, V. H., S. Herrera, K. Rostamiani, H. H. Chun and S. B. Oppenheimer

Title Rapid identification of lectin receptors and their possible function in sea-urchin ce

Year 1995

Source title Acta Histochemica

Reference 97(4): 373-382

Abstract

An assay using lectin derivatized agarose beads to rapidly and inexpensively identify cell surface lectin receptors was recently described by Latham et al. (1995). In this earlier study, the assay was tested on large, early stage sea urchin embryo cells. In this study this assay was used to examine lectin receptors on small, later stage sea urchin embryo cells that are more typical of cells that most investigators deal with, to ascertain if cell size is a determining factor in the assay's validity. The results indicated that the assay is a valid method to identify lectin receptors on small as well as large cells. Twenty-three hour Strongylocentrotus purpuratus embryo cells strongly bound Triticum vulgaris, concanavalin A, Artocarpus integrifolia and Vicia villosa using both the agarose bead and fluorescence assays, while three other lectins, Ulex europaeus I, Lotus tetragonolobus and Lens culinaris did not strongly bind to the cells using these two assays. As in earlier studies agglutinability results did not correlate well with results using the two other assays. In all cases where lectin bead binding, fluorescent lectin binding or lectin-mediated agglutination occurred, specific sugars reduced the observed binding. The second part of this study examined the putative role of concanavalin A receptors in a specific cellular interaction: sperm-egg binding. Concanavalin A inhibited fertilization of dejellied sea urchin eggs when their vitelline layers were intact and to a lesser extent when their vitelline layers were removed. This effect was counteracted by alpha methyl glucose. The major differences between these studies and previous work is that here concanavalin A was washed out after incubation with eggs, making it more likely that results reflect binding to cell surface lectin receptors rather than toxicity. In addition, performing the experiments on eggs with or without vitelline layers provided information on the location of concanavalin A receptors that may function in sperm-egg interaction.

Author Lin, C. N., C. M. Lu and P. L. Huang

Title Flavonoids from Artocarpus heterophyllus

Year 1995

Source title Phytochemistry

Reference 39(6): 1447-1451

Abstract

A new flavanone, a new prenylflavone, a novel phenolic compound, heterophylol, reported in a previous paper, and nine known flavonoids have been isolated from the root of Artocarpus heterophyllus. The two new flavonoids have been characterized as 5,2'-dihydroxy-7,4'-dimethyoxyflavanone and 8-(gamma,gamma-dimethylallyl)-5,2',4'-trihydroxy-7-methoxyflavone, respectively.

Author Ngoc, L. D., M. Brillard, J. Hoebeke and P. Aucouturier

Title A new alpha-chain of jacalin from jack-fruit seeds of 2 wild-species

Year 1995

Source title Comptes Rendus de l'Academie des Sciences Serie Iii-Sciences de la Vie-Life Sci

Reference 318(2): 167-172

Abstract

Jacalins, from jack-fruit seeds of 2 wild species (Artocarpus asperulus, Artocarpus masticata) were purified by mucine-sepharose 4B affinity chromatography. The alpha and beta chains were separated by reverse phase high pressure liquid chromatography (HPLC). Analysis by HPLC with a C8 column and the determination of the N-terminal sequence of the alpha-chain of these jacalins allowed the identification of a new alpha-chain. Immunological cross-reactivity and carbohydrate specificity indicate that jacalins possessing the new alpha-chain conserve structural and functional properties of the other members of Artocarpus genus.

Author Oliveira, P. S. L., R. C. Garrat, Y. P. Mascarenhas and L. M. Beltramini

Title X-ray diffraction data collection to 2.8 + resolution and determination of noncryst

Year 1995

Source title Atomic Energy Commission USA

Reference 21

Abstract

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Author Ragone, D.

Title Description of pacific island breadfruit cultivars

Year 1995

Source title Acta Horticulturae

Reference 93-98

Abstract

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Author Rahman, A. K. M. M., E. Huq, A. J. Mian and A. Chesson

Title Microscopic and chemical-changes occurring during the ripening of 2 forms of jac

Year 1995

Source title Food Chemistry

Reference 52(4): 405-410

Abstract

Trees known to produce two distinct textural forms of jackfruit, in which the fruit either remained firm when ripe or became soft and pulpy, were sampled when fruit was immature (10-11 weeks after anthesis) and when judged ripe (15-16 weeks after anthesis). The dry matter content of the edible perianth increased with maturity from 125 to 215 and 140 to 240 g kg(-1) wet weight perianth in the firm and soft fruits respectively. Perianth from immature fruits had a high water-insoluble content (840-890 g kg(-1) dry matter) consisting largely of cell wall material (450-530 g kg(-1) dry matter) and starch (approximately 330 g kg(-1) dry matter). Microscopic examination of fruit at this stage showed the perianth to contain thin-walled cells packed with starch granules, some organised into distinct clusters. In ripe fruits the starch (20-110 g kg(-1) dry matter) and cell wall (170-200 g kg(-1) dry matter) contents were substantially reduced, the extent of hydrolysis being greatest in the soft form. Cell maceration and starch dissolution were evident in both forms of the fruit when examined by light microscopy, but were more pronounced in the soft form. Concomitant with the decrease in water-insoluble dry matter was a substantial increase of water-soluble material (660-790 g kg(-1) dry matter) which included fructose (76-113 g kg(-1) dry matter) and sucrose (approximately 95 g kg(-1) dry matter). Mannitol (22-68 g kg(-1) dry matter) was also found in ripe but not immature fruits. Concentration of low molecular weight carbohydrate was greatest in the soft form. Polygalacturonase and pectin esterase activities were 12-fold and 40-fold higher in ripe fruits of the soft form compared to those of the firm form. This was reflected in the greater extent of tissue maceration and loss of homogalacturonan in the soft form. Since both forms of fruit demonstrated a common pattern of ripening, textural differences evidently related to the extent of change which was greatest in the soft form. The firm form of jackfruit may represent fruit in which cell wall degradation is arrested or delayed during ripening and possibly this was related to a reduced capacity to produce pectic and other cell wall degrading enzymes. x

Author Ravindran, V. and R. Sivakanesan

Title Breadfruit (Artocarpus communis) meal - nutrient composition and feeding value

Year 1995

Source title Journal of the Science of Food and Agriculture

Reference 69(3): 379-383

Abstract

Breadfruit (Artocarpus communis) meal was found to contain (g kg(-) dry matter) 59 crude protein, 14 crude fat, 59 crude fibre, 34 ash and 834 available carbohydrates. The amino acid composition of breadfruit meal (BFM) compared closely with that of maize. The nitrogen-corrected apparent metabolisable energy value of BFM was determined to be 13.89 MJ kg(-1) dry matter. Two trials were conducted to evaluate the feeding value of BFM in broiler diets. In trial 1, BFM was included in broiler starter and finisher diets at 0, 125 and 250 g kg(-1) replacing maize. In trial 2, BFM was incorporated in broiler starter diets at 0, 200 and 400 g kg(-1) replacing maize. The results indicate that BFM supported broiler performance as efficiently as maize at all dietary levels tested.

Author Shafi M; Khan MS

Title Suitability of village tree species of Bangladesh for hardboard manufacture

Year 1995

Source title Bangladesh Journal of Forest Science

Reference 24(1): 36-40

Abstract

Nine tree species (mango, Mangifera indica; jackfruit, Artocarpus heterophyllus; neem, Azadirachta indica; raintree, Samanea saman [Albizia saman]; babla, Acacia nilotica; shisham, Dalbergia sissoo; pannya mandar, Erythrina fusca; mandar, Erythrina orientalis; and tentul, Tamarindus indica) growing in villages in Bangladesh were studied to determine their suitability for making hardboard from mechanically defiberized pre-steamed chips. Strength and water-resistance properties of the boards were determined. None of the species were suitable for making hardboard good enough to meet the requirements of Class-1 hardboard of the US Hardboard Association Specifications. Nevertheless, all of the species except neem, produced good, or even better, hardboards compared with that made from sundri [Heritiera fomes] which is used in Khulna Hardboard Mills.

Author Shinomiya, K., M. Aida, Y. Hano and T. Nomura

Title A diels-alder-type adduct from Artocarpus heterophyllus

Year 1995

Source title Phytochemistry

Reference 40(4): 1317-1319

Abstract

A new natural Diels-Alder-type adduct, artonin X, along with two known Diels-Alder type adducts, were isolated from the bark of Artocarpus heterophyllus. The structure was elucidated by spectroscopic methods.

Author Singh, I. P. and C. K. Sharma

Title Effect of position of air layering on rooting jack fruit (Artocarpus heterophyllus)

Year 1995

Source title Progressive Horticulture

Reference 27(1/2): 22-23

Abstract

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Author Singh, M., B. K. Sharma and H. S. Yadava

Title Response of plant growth regulators and layering dates on air-layering of jack-frui

Year 1995

Source title Advances in Plant Sciences

Reference 8(1): 130

Abstract

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Author Taungbodhitham, A. K.

Title Thiamin content and activity of antithiamin factor in vegetables of southern Thail

Year 1995

Source title Food Chemistry

Reference 52(3): 285-288

Abstract

Fourteen types of vegetable commonly consumed by people in southern Thailand were analyzed for content of endogenous free-form thiamin and activity of antithiamin factor (ATF). The mean of endogenous free-form thiamin content (mu g/g vegetable) ranged from 0 in phak kuad (Diplazium esculentum (Retz.) SW.) and khanun (Artocarpus heterophyllus Lamk.) to 2.8 in sato (Parkia speciosa Hassk.). Activity of heat-stable ATF incubated for 3 h (percent thiamin destroyed/g vegetable) ranged from 2.3 in sato to 100 in phak kuad and khanun. Among the analyzed samples, activity of heat-stable ATF above 50% was found in 10 types. Activity of heat-labile ATF above 40% was found only in four types and the rest were below 15.7%. Furthermore, samples with a high activity of ATF tended to have low thiamin content.

Author To, W. Y., J. C. K. Leung and K. N. Lai

Title Identification and characterization of human serum alpha2-hs glycoprotein as a ja

Year 1995

Source title Biochimica et Biophysica Acta-Protein Structure and Molecular Enzymology

Reference 1249(1): 58-64

Abstract

We recently adopted immobilized jacalin as an affinity adsorbent to purify human serum IgA for laboratory study. In the course of our investigation, we detected a serum protein that co-eluted with IgA from jacalin-agarose affinity column. It constituted in significant quantity (24.0 +/- 0.9%, n = 30) of total jacalin-bound protein (JBP) and the yield was equivalent to 0.4 +/- 0.1 mg per ml serum. The molecular mass of this protein was 55 kDa with electromobility in the alpha(2) region as demonstrated by SDS-PAGE and immunoelectrophoresis. N-terminal microsequencing of this 55 kDa protein revealed that it is human alpha(2)-HS glycoprotein (alpha(2)HSG). The molecular interaction of alpha(2)HSG with jacalin was characterized by competitive ELISA: human serum IgA, human colostrum secretory IgA (sIgA), and monosaccharides including D-galactose and melibiose exhibited strong inhibitory effect on its binding to jacalin. Accordingly, we propose that human alpha(2)HSG binds in a similar manner as that of the bovine fetuin to jacalin. In addition, alpha(2)HSG displays similar binding property to jacalin from different geographic area (India and Malaysia) and from different laboratory preparations (Sigma, Pierce and 'homemade' jacalin).

Author Williams, L. A. D. and A. Mansingh

Title Insecticidally active triterpene from Artocarpus altilis Park

Year 1995

Source title Philippine Journal of Science

Reference 124(4): 345-358

Abstract

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Author Wongkham, S., C. Wongkham, P. Boonsiri, S. Simasathiansophon, C. Trisonthi a

Title Isolectins from seeds of Artocarpus lakoocha

Year 1995

Source title Phytochemistry

Reference 40(5): 1331-1334

Abstract

Two isolectins (ALA-I and ALA-II), were isolated from seed extracts of Artocarpus lakoocha by anion exchange chromatography on Q-Sepharose fast-flow columns at pH 8.5 and 8.0.ALA-I was unbound to the column at pH 8.5 and moved towards the cathode in non-denaturing polyacrylamide gel electrophoresis, whereas ALA-II possessed opposite properties. The two A. lakoocha agglutinins appeared to be composed of two dissimilar subunits (alpha and beta of M, 14000 and 17 200) bound non-covalently. The isolectins possessed several similar properties including: blood type agglutination; pH optimum; pH and temp stability; as well as binding specificity towards asialomucins.

Author Wu AM; Duk M; Lin M; Broadberry RE; Lisowska W

Title Identification of variant glycophorins of human red-cells by lectinoblotting - appli

Year 1995

Source title Transfusion

Reference 35(7): 571-576

Abstract

Background: Detection of normal and Variant glycophorin electrophoretic bands with T- and Tn-specific lectins is based on the possibility of glycophorin transformation into T or Tn antigens by simple chemical modifications in the blot. - Study Design and Methods: Human red cell membrane proteins were fractionated by sodium dodecyl sulfate-polyacrylamide gel electrophoresis and blotted onto nitrocellulose. The blots were submitted to mild acid hydrolysis (desialylation of glycophorins exposing T antigens) and then to Smith degradation (degalactosylation of asialo-glycophorins exposing Tn antigens). The modified glycophorin bands were detected with biotinylated lectins and horseradish peroxidase-conjugated avidin. - Results: The lectins from Artocarpus integrifolia (jacalin, anti-T/Tn), Amaranthus hybridus (anti-T), Salvia sclarea (anti-Tn), and Vicia villosa (anti-Tn) were used. The lectins detected normal glycophorin bands in control and variant red cells and characteristic additional bands in Mi.lll (GP. Mur) red cells. The sensitivity of the method is comparable to that obtained by immunoblotting with glycophorin monoclonal antibodies. Comparison of the electrophoretic mobility of normal and variant bands is helpful in the classification of glycophorin variants. - Conclusion: Lectinoblotting, based on carbohydrate recognition, enables the detection in a red cell sample, with high sensitivity, of all normal and variant glycophorin bands. The method can be also applied to other purposes, such as the identification of poly-O-glycosylated glycoproteins in other cells or the characterization of glycosylation of glycophorins and other poly-O-glycosylated proteins.

Author Wu, A. M., A. Herp, S. C. Song, J. H. Wu and K. S. S. Chang

Title Interaction of native and asialo rat sublingual glycoproteins with lectins

Year 1995

Source title Life Sciences

Reference 57(20): 1841-1852

Abstract

The binding properties of the rat sublingual glycoprotein (RSL) and its asialo product with lectins were characterized by quantitative precipitin (QPA) and precipitin inhibition (QPIA) assays. Among twenty lectins tested for QPA, native RSL reacted well only with Artocarpus integrifolia (jacalin), but weakly or not at all with the other lectins. However, its asialo product (asialo-RSL) reacted strongly with many Gal and GalNAc specific lectins- it bound best to three of the GalNAc alpha 1-->Ser/Thr (Tn) and/or Gal beta 1-->4GlcNAc (II) active lectins [jacalin, wistaria floribunda and Ricinus communis agglutinins] and Completely precipitated each of these three lectins. Asialo-RSL also reacted well with Abrus precatorius, Glycine max, Bauhinia purpurea alba, and Maclura pomifera agglutinins, and abrin-a, but not with Arachis hypogeae and Dolichos biflorus agglutinins. The interaction between asialo-RSL and lectins were inhibited by either Gal beta 1-->4GlcNAc, p-NO2-phenyl alpha-GalNAc or both. The mapping of the precipitation and inhibition profiles leads to the conclusion that the asialo rat sublingual glycoprotein provides important ligands for II (Gal beta 1-->4GlcNAc beta 1-->) and Tn(GalNAc alpha 1-->Ser/Thr) active lectins.

Author Wu, A. M., F. S. Shen, A. Herp, S. C. Song and J. H. Wu

Title Fraction-a of armadillo submandibular glycoprotein and its desialylated product a

Year 1995

Source title Febs Letters

Reference 360(2) : 211-215

Abstract

Fraction A of the armadillo submandibular glycoprotein (ASG-A) is one of the simplest glycoproteins among mammalian salivary mucins, The carbohydrate side chains of this mucous glycoprotein have one-third of the NeuAc alpha 2-->6GalNAc (sialyl-Tn) sequence and two thirds of Tn (GalNAc alpha-->Ser/Thr) residues. Those of the desialylated product (ASG-Tn) are almost exclusively unsubstituted GalNAc residues (Tn determinant), When the binding properties of these glycoproteins were tested by a precipitin assay with Gal, GalNAc and GlcNAc specific lectins, it was found that ASG-Tn reacted strongly with all of the Tn-active lectins and completely precipitated Vicia villosa (VVL both B-4 and mixture of A and B), Maclura pomifera (MPA), and Artocarpus integrifolia (jacalin) lectins. However, it precipitated poorly or negligibly with Ricinus communis (RCA(1)); Dolichos biflorus (DBA); Viscum album, ML-I; Arachis hypogaea (PNA), and Titicum vulgaris (WGA), The reactivity of ASG-A sialyl-Tn) was as active as that of ASG-Tn with MPA and less or slightly less active than that of ASG-Tn with VVL-A+B, VVL-B-4 HPA, WFA, and jacalin, as one-third of its Tn was sialylated. These findings indicate that ASG-A and its desialylated product (ASG-Tn) are highly useful reagents for the differentiation of Tn, T (Gal beta 1-->3GalNAc), A (GalNAc alpha 1-->Gal) or Gal specific lectins and monoclonal antibodies against such epitopes.

Author Yagi, M., A. Camposneto and K. Gollahon

Title Morphological and biochemical-changes in a hematopoietic-cell line induced by j

Year 1995

Source title Biochemical and Biophysical Research Communications

Reference 209(1): 263-270

Abstract

Treatment of the human erythroleukemia cell line K562 with the galactose-binding lectin, jacalin, results in rapid and profound alterations in the morphology and biochemistry of the cells. Within minutes of lectin addition, the cells adhere to the plastic tissue culture surface, and within hours, the cells spread on the surface, acquiring a monocyte-like appearance. Jacalin treatment results in elevated expression of CD61 (integrin beta(3)) and CD14, a monocyte-associated cell surface antigen. These results suggest that jacalin treatment of K562 cells triggers intracellular events that result in differentiation along the monocyte lineage. (C) 1995 Academic Press, Inc.

Author Young, N. M., D. C. Watson and P. Thibault

Title Mass-spectrometric analysis of genetic and posttranslational heterogeneity in the l

Year 1995

Source title Glycoconjugate Journal

Reference 12(2): 135-141

Abstract

Jacalin and M. pomifera agglutinin are T-antigen specific lectins with alpha(4) beta(4) structures that show far greater microheterogeneity than plant lectins from other families, due to multiple genetic isoforms and post-translational processing. Electrospray mass spectrometry and combined liquid chromatography-electrospray mass spectrometry were used to characterize the various forms. For both lectins, the mass data were consistent with previous protein sequencing of the major alpha-chain species of 133 residues and three beta-chain species of 20 or 21 residues. In addition, for jacalin the mass of one minor alpha-chain species was consistent with a second of the four reported gene sequences. However, the glycopeptide alpha-chain form and one beta-chain form did not match any of the genes, suggesting a fifth gene remains to be found. For M. pomifera agglutinin, three more beta-chain forms were found, but all six could arise from only two genes, with additional post-translational proteolysis and post-translational substitution with an unidentified component of 106 Da creating the set of six forms. Only two alpha-chain forms were found also, with no glycosylation.

Author Zhou, D. Y., E. B. Yang, Y. Deng and S. F. Zhou

Title Purification and characterization of lectin from the seeds of Artocarpus hypargyre

Year 1995

Source title Acta Biochimica Et Biophysica Sinica

Reference 27(1): 61

Abstract

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Author Zschabitz, A., H. Weiser, E. Stofft, V. Krahn, H. J. Gabius, A. Khaw and H. K. Bi

Title Characterization of glycoconjugate expression during development of meckels car

Year 1995

Source title Anatomy and Embryology

Reference 191(1): 47-59

Abstract

The staining patterns of 24 biotinylated lectins were analyzed in serial sections of the mandible of 13- to 21-day-old rat embryos by means of the avidin-biotin-peroxidase method. A ubiquitous distribution of binding sites was demonstrated after incubation with Con A (Canavnlia ensiformis), DSL (Datura stramnonium; except bone matrix), and WGA (Triticum vulgare). ECL (Erythrina cristagalli), GSL I(Griffonia simplicifolia), SJA (Saphora japonica), VVL (Vicia villosa), DBA (Dolichus biflorus), UEA I(Ulex europeus), and LTA (Lotus tetragonobolus) were constantly negative. In early stages of development, GSL II (Griffonia simplicifolia II) was a selective marker of prechondral blastema. In contrast, PNA (Arachis hypogaea) did not stain condensing mesenchyme. During chondrogenesis of Meckels's cartilage a general decrease of lectin binding was observed. Mature cartilage matrix was constantly negative. Chondrocytes were marked by the lectins PSA (Pisum sativum), WGA, PHA-E, and PHA-L (Phaseolus vulgaris E and L). A strong GSL II binding was restricted to the mesial-superior region of the perichondrium. In later stages, several lectins revealed significant differences between preskeletal ("central") areas and the remaining ("peripheral") mesenchyme. A clear binding reaction was noted in central regions by applying LEA (Lycopersicon esculentum) and STL (Solanum tuberosum), while the peripheral tissue was only faintly stained. Developing bone was specifically marked by succinylated WGA (sWGA). The lectins LCA (Lens culinarus) and RCA (Ricinus communis) bound to fibers and extracellular matrix of the connective tissue. Jacalin (Artocarpus integrifolia) and SBA(Glycine max) binding sites were found in macrophages. Affinity of VAA (Viscum album) increased parallel with maturation of endothelial cells. Specific lectin-binding patterns revealed no correlation with the distribution of glycosaminoglycans. The results demonstrate a general reduction of oligosaccharide structures during development of Meckel's cartilage. From our observations we conclude that intralaminar glucose and/or mannose sequences as well as terminal sialic acid molecules are ubiquitously distributed, while terminal a-fucose was constantly negative. Lectin-binding patterns of macrophages may reflect the presence of specifically linked terminal galactose. Our findings indicate that oligosaccharides terminating in N-acetylglucosamine are bone-specific. The significance of the restricted staining of the perichondrium by GSL II remains to be elucidated.

Author Aida, M., K. Shinomiya, K. Matsuzawa and Y. Hano

Title Artonins q, r, s, t, and u, five new isoprenylated phenols from the bark of Artocarp

Year 1994

Source title Heterocycles

Reference 39(2): 847

Abstract

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Author Aida, M., K. Shinomiya, K. Matsuzawa, Y. Hano and T. Nomura

Title Constituents of the moraceae plants .19. Artonin-q, artonin-r, artonin-s, artonin-t,

Year 1994

Source title Heterocycles

Reference 39(2): 847-858

Abstract

Five new isoprenylated phenols, artonins Q(1), R(2), S(3), T(4), and U(5), were isolated from the bark of Artocarpus heterophyllus Lamk., an Indonesian moraceous plant. The structures of artonins Q, R, S, T, and U were shown to be 1, 2, 3, 4, and 5, respectively, on the basis of spectroscopic data and chemical evidence.

Author Barik, B. R., T. Bhaumik, A. K. Dey and A. B. Kundu

Title Triterpenoids from Artocarpus heterophyllus

Year 1994

Source title Phytochemistry

Reference 35(4): 1001-1004

Abstract

From the ether extract of dried latex of Artocarpus heterophyllus (syn. A. integrifolia), two new tetracyclic triterpenoids, 9,19-cyclolanost-3-one-24,25-diol (24 R) and 9,19-cyclolanost-3-one-24,25-diol (24 S) together with two known compounds, cycloartenone and cycloartenol have been isolated. The structures were elucidated by detailed spectroscopic and chemical methods.

Author Desimone, S. G., R. Santos, M. F. Araujo and R. T. Pinho

Title Preparative isolation of the lectin jacalin by anion-exchange high-performance liq

Year 1994

Source title Journal of Chromatography A

Reference 688(1-2): 357-362

Abstract

The lectin jacalin from Artocarpus integrifolia was purified to homogeneity in a single step by preparative anion-exchange high-performance liquid chromatography (HPLC). Selection of the optimum chromatographic parameters in gradient elution allowed a rapid procedure to be obtained for the qualitative and quantitative isolation of the most important alpha- and alpha'-jacalin components. A recovery of 27-33% was obtained from a total soluble extract using a polyacrylate-DEAE HPLC column. The identities of the two isolated polypeptides were established by N-terminal amino acid sequence analysis and from the IgA(1) binding lectin activity.

Author Hano, Y., R. Inami and T. Nomura

Title A novel flavone, artonin-v, from the root bark of Artocarpus altilis

Year 1994

Source title Journal of Chemical Research-S

Reference (9): 348-349

Abstract

A novel flavone, artonin V, isolated from the root bark of Artocarpus altilis was shown to have the structure 1 on the basis of spectroscopic evidence.

Author Hashim, O. H., G. S. Gendeh, C. N. Cheong and M. I. N. Jaafar

Title Effect of Artocarpus integer lectin on functional-activity of guinea-pig compleme

Year 1994

Source title Immunological Investigations

Reference 23(2): 153-160

Abstract

The effect of Artocarpus integer lectin (lectin C) on the functional activity of guinea-pig complement was investigated. Purified and crude extract of lectin C from six cultivars of Artocarpus integer seeds were found to consume complement and thus decreased the complement-induced haemolytic activity of sensitized sheep erythrocytes. The change in the complement-mediated haemolytic activity was significantly decreased when incubation of the lectins was performed in the presence of melibiose. The reversal effect of the carbohydrate, which is a potent inhibitor of the lectin's binding to O-linked oligosaccharides of glycoprotein, demonstrate involvement of the lectins interaction with O-glycans of glycoproteins in the consumption of guinea-pig complement.

Author Kabir, S. and A. S. Daar

Title The composition and properties of jacalin, a lectin of diverse applications obtaine

Year 1994

Source title Immunological Investigations

Reference 23(3): 167-188

Abstract

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Author Kibria, S. S., T. N. Nahar and M. M. Mia

Title Tree leaves as alternative feed resource for black bengal goats under stall-fed con

Year 1994

Source title Small Ruminant Research

Reference 13(3): 217-222

Abstract

In a completely randomized design, 28 Black Bengal goats were assigned to seven types of tree leaves: mander (Erythrina variegata Lamk), sal (Shorea robusta Gaertn.), krishnachura (Dolonix regia Boj ex-Hook), jack fruit (Artocarpus heterophyllus Lamk), ipil-ipil (Leucaena leucocephala Lam.), mango (Mangifera indica I.) and guava (Psidium guajava I.). The duration of the study was 140 days. There were significant differences in dry matter intake between tree leaves, but no significant differences between krishnachura, mango and guava leaves. Animals fed guava leaves lost weight at a rate of 3.9 g/d, whereas ipil-ipil-, jack fruit-, mander-, sal-, krishnachura- and mango-fed goats gained 52.8, 43.9, 33.3, 26.9, 12.1 and 6.4 g/d, respectively, with significant differences ($P < 0.01$). Tree leaves, such as ipil-ipil, jack fruit, mander and sal, could be used as fodder for Black Bengal goats when 140 g concentrate mixtures were allowed for them.

Author Lu, C. M. and C. N. Lin

Title Flavonoids and 9-hydroxytridecyl docosanoate from Artocarpus heterophyllus

Year 1994

Source title Phytochemistry

Reference 35(3): 781-783

Abstract

A novel 2',4',6'-trioxygenated flavanone, named heteroflavanone C, 8-(gamma,gamma-dimethylallyl)-5,7-dihydroxy-2',4',6'-trimethoxyflavanone, a new prenylflavonoid, named cycloartocarpin A, a new long chain fatty ester, 9-hydroxytridecyl decosanoate, and four known compounds, beta-sitosterol, betulin, ursolic acid and betulinic acid were isolated and characterized from the root bark of Artocarpus heterophyllus.

Author Misquith, S., P. G. Rani and A. Surolia

Title Carbohydrate-binding specificity of the b-cell maturation mitogen from Artocarpu

Year 1994

Source title Journal of Biological Chemistry

Reference 269(48): 30393-30401

Abstract

Artocarpin, a mannose-specific lectin, is a homotetrameric protein (M(r) 65,000) devoid of covalently attached carbohydrates and consists of four isolectins with pI in the range 5-6.5. Investigations of its carbohydrate binding specificity reveal that among monosaccharides, mannose is preferred over glucose. Among mannooligosaccharides, mannotriose (Man alpha 1-3[Man alpha 1-6]Man) and mannopentaose are the strongest ligands followed by Man alpha 1-3Man. Extension of these ligands by GlcNAc at the reducing ends of mannooligosaccharides tested remarkably improves their inhibitory potencies, while substitution of both the alpha 1-3 and alpha 1-6 mannosyl residues of mannotriose and the core pentasaccharide of N-linked glycans (Man alpha 1-3[Man alpha 1-6]Man beta 1-4GlcNAc beta 1-4GlcNAc) by GlcNAc or N-acetyllactosamine in beta 1-2 linkage diminishes their inhibitory potencies. Sialylated oligosaccharides are non-inhibitory. Moreover, the substitution of either alpha 1-3 or alpha 1-6 linked mannosyl residues of M(5)Gn or both by mannose in alpha 1-2 linkage leads to a considerable reduction of their inhibitory power. Addition of a xylose residue in beta 1-2 linkage to the core pentasaccharide improves the inhibitory activity. Considering the fact that artocarpin has the strongest affinity for the xylose containing heptasaccharide from horseradish peroxidase, which differs significantly from all the mannose/glucose-specific lectins, it should prove a useful tool for the isolation and characterization of glycoproteins displaying such structure.

Author Nomura, T. and Y. Hano

Title Isoprenoid-substituted phenolic-compounds of moraceous plants

Year 1994

Source title Natural Product Reports

Reference 11(2): 205-218

Abstract

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Author Remani, P., K. R. Pillai, V. M. Haseenabeevi, R. Ankathil, V. N. Bhattathiri, M.

Title Lectin cytochemistry in the exfoliative cytology of uterine cervix

Year 1994

Source title Neoplasma

Reference 41(1): 39-42

Abstract

A lectin was isolated from the seeds of jack fruit (Artocarpus integrifolia) and purified using a column of immobilized N-acetyl-D-galactosamine. This jack fruit lectin (JFL) was then conjugated to horse-radish peroxidase (HRP) type VI and used to study the cell surface carbohydrate profile of the cytological smears of the uterine cervix using diaminobenzidine as substrate. Cervical smears from is healthy individuals and 65 patients with dysplasia, carcinoma in situ and carcinoma of uterine cenix were used for the study. Normal cells showed weak binding in the membrane as well as cytoplasm, whereas carcinomatous cells showed strong binding towards JFL. Carcinoma in situ cells showed a binding pattern similar to that of carcinoma. Dysplastic cells showed difference in binding in mild, moderate and severe dysplasia. The intensity of binding increased with the severity of the dysplasia. The nature and intensity of binding of jack fruit lectin with cancer tissues suggest that this lectin may be of use as a diagnostic aid in exfoliative cytology.

Author Santosdeoliveira, R., M. Diasbaruffi, S. M. O. Thomaz, L. M. Beltramini and M.

Title Neutrophil migration-inducing lectin from Artocarpus integrifolia

Year 1994

Source title Journal of Immunology

Reference 153(4): 1798-1807

Abstract

A neutrophil migration-inducing protein has been isolated from the saline extract of Artocarpus integrifolia seeds by successive sugar affinity chromatography steps during which the protein was not absorbed by D-galactose resin, and then was absorbed to and eluted from D-mannose resin by 0.1 M D-mannose. Gel filtration on Superdex 75 HR indicated a molecular mass of 52 kDa when 0.1 M D-mannose was present in the elution buffer. A single band of apparent molecular mass of 13 kDa was demonstrable by SDS-PAGE only after heating, both in the presence and absence of reducing agent, suggesting that the molecule is a tetramer formed by the noncovalent association of 13 kDa chains. Isoelectric forms corresponding to isoelectric points of 4.0, 4.2, 5.0, and 5.2 were demonstrable by isoelectric focusing-PAGE, and four active forms having the same isoelectric paints were separated by chromatofocusing. The minimal m.w. calculated from amino acid analysis data was 13,193. The protein, denoted KM(+), stimulated neutrophil migration in the rat peritoneal cavity assay in a dose-related manner in the range of 1 to 300 mu g per rat. The dose-response curve of the in vitro chemotactic activity of KM(+) was bell shaped and its ascending limb was dose dependent in the range of 1 ng to 10 mu g/well. D-Mannose (0.1 M) inhibited the in vitro (80%) and in vivo (60%) neutrophil migration-inducing activities of KM(+) and also its hemmaglutinating activity. The chemotactic activity was shown to be caused by haptotaxis rather than chemokinesis. The physical and biologic properties of KM(+) suggest that this lectin may attract neutrophils by a mechanism involving a haptotactic gradient as has been proposed for IL-8. KM(+) might be used as a tool to study protein-carbohydrate interactions during neutrophil migration through the extracellular matrix.

Author Smith-Kielland, I. and K. E. Malterud

Title Triterpenoids from Artocarpus integrifolia fruits

Year 1994

Source title Planta Medica

Reference 60(2): 196-196

Abstract

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Author Tuori, A., I. Virtanen and H. Uusitalo

Title Lectin-binding in the anterior segment of the bovine eye

Year 1994

Source title Histochemical Journal

Reference 26(10): 787-798

Abstract

Eleven different fluorescent lectin-conjugates were used to reveal the location of carbohydrate residues in frozen sections of the anterior segment of bovine eyes. The lectins were specific for the following five major carbohydrate groups: (1) glucose/mannose group (Concanavalin A (Con A)); (2) N-acetylglucosamine group (wheat germ agglutinin (WGA)); (3) galactose/N-acetylgalactosamine group (Dolichos biflorus agglutinin (DBA), Helix pomatia agglutinin (HPA), Helix aspersa agglutinin (HAA), Psophocarpus tetragonolobus agglutinin (PTA), Griffonia simplicifolia agglutinin-I-B-4; (GSA-I-B-4), Artocarpus integrifolia agglutinin (JAC), peanut agglutinin (PNA) and Ricinus communis agglutinin (RCA-I)); (4) L-fucose group (Ulex europaeus agglutinin (UEA-I)); (5) sialic acid group (wheat germ agglutinin (WGA)). All the studied lectins except UEA-I reacted widely with different structures and the results suggest that there are distinct patterns of expression of carbohydrate residues in the anterior segment of the bovine eye. UEA-I bound only to epithelial structures. Some of the lectins reacted very intensely with apical cell surfaces of conjunctival and corneal epithelia suggesting a different glycosylation at the glycocalyx of the epithelia. Also, the binding patterns of conjunctival and corneal epithelia differed with some of the lectins: PNA and RCA-I did not bind at all, and GSA-I-B-4 bound only very weakly to the epithelium of the cornea, whereas they bound to the epithelium of the conjunctiva. In addition, HPA, HAA, PNA and WGA did not bind to the corneal basement membrane, but bound to the conjunctiva and vascular basement membranes. This suggests that corneal basement membrane is somehow different from other basement membranes. Lectins with the same carbohydrate specificity (DBA, HPA, HAA and PTA) reacted with the sections almost identically, but some differences were noticed: DBA did not bind to the basement membrane of the conjunctiva and the sclera and did bind to the basement membrane of the cornea, whereas other lectins with same carbohydrate specificities reacted vice versa. Also, the binding of PTA to the trabecular meshwork was negligible, whereas other lectins with the same carbohydrate specificities reacted with the trabecular meshwork. GSA-I-B-4 reacted avidly with the endothelium of blood vessels and did not bind to the stroma, so that it made blood vessels very prominent and it might be used as an endothelial marker. This lectin also reacted avidly with the corneal endothelium. Therefore, GSA-I-B-4 appears to be a specific marker in bovine tissues for both blood vessel and corneal endothelium cells.

Author Wood, C. D., B. N. Tiwari, V. E. Plumb, C. J. Powell, B. T. Roberts, V. D. P. Siri

Title Interspecies differences and variability with time of protein precipitation activity

Year 1994

Source title Journal of Chemical Ecology

Reference 20(12): 3149-3162

Abstract

Dry matter, ash, crude protein, and protein precipitation activity (PPA) of 13 Nepalese tree fodder species were monitored in dried samples prepared monthly between November 1990 and May 1991, and additionally in November 1991, covering the season when they are particularly important as fodder. Monthly levels of dry mailer, ash, and crude protein were fairly stable except when there was new leaf growth, although year to year differences in dry matter were found in Brassaiopsis hainla (Bh), Dendrocalamus strictus (Ds), Ficus roxburghii (Fr), and Quercus semecarpifolia (Qs). Tannin PPA fluctuated considerably in Artocarpus lakoocha (Al), Ficus glaberrima (Fg), F. nerrifolia (Fn), Fr, F. semicordata (Fs), Litsea polyantha (Lp), and Prunus cerasoides (Pc), and to a lesser extent in Bh, Castanopsis indica (Ci), C. tribuloides (Ct), Quercus lamellosa (Ql), and Qs. Similar fluctuations in PPA were observed in fresh leaf samples taken weekly. Ds did not have any detectable PPA. Trends in PPA fluctuation were generally similar for trees located at similar altitudes. Pr, Pc, Al, Fn, Ql, and Ci had falling PPAs before shedding leaves. Some of the fluctuations in Fr, Fs, Fg, Pc, and Lp were apparently due to changes in the extractability and quantity of condensed tannins. These fluctuations in PPA may affect the nutritive value of the fodders.

Author Wu, A. M., F. Shen, A. Herp and J. H. Wu

Title Interaction of hamster submaxillary sialyl-tn and tn glycoproteins with gal, galnac

Year 1994

Source title Molecular Immunology

Reference 31(6): 485-490

Abstract

Hamster submaxillary glycoprotein (HSM), one of the simplest glycoproteins among mammalian salivary mucins, is composed of approximately equivalent amounts of protein, hexosamine and sialic acid. The Thr and Ser residues in the protein core account for more than half of all of the amino acid residues, while Lys, Glu, Pro and Ala are the major components of the remaining portion of amino acids. The carbohydrate side chains of this mucous glycoprotein have mainly the NeuAc-GalNAc-(sialyl-Tn) sequence (HSM), and those of the desialylated product (HSM-Tn) are almost exclusively unsubstituted GalNAc residues (Tn determinants). The binding properties of sialyl-Tn (HSM) and asialo-HSM (HSM-Tn) glycoproteins were tested by precipitin assay with Gal, GalNAc and GlcNAc specific lectins. The I-ISM-Tn completely precipitated Vicia villosa (VVL both B-4 and mixture of A and B), Maclura pomifera (MPL), and Artocarpus integrifolia (Jacalin) lectins; less than 2 mu g of HSM-Tn were required for precipitating 50% of 5.0-6.3 mu g lectin nitrogen added. HSM-Tn also reacted well with Helix pomatia lectin (HPL), Wistaria floribunda lectin (WFL) and Abrus precatorius agglutinin (APA) and precipitated in each case over 81% of the lectin nitrogen added. The reactivity of I-ISM-Tn with other lectins (Ricinus communis, RCA(I); Dolichol biflorus, DBL; Viscum album, ML-I; Arachis hypogaea, PNA, and Triticum vulgaris, WGA) was weak or negligible. The activity of sialyl-Tn (HSM) was more restricted; HSM reacted well with Jacalin, moderately with MPL and VVL-B-4, but was inactive or only weakly active with the other lectins used. These findings indicate that HSM and its desialylated product (I-ISM-Tn) are highly useful reagents for the differentiation of Tn and T/Gal specific lectins and for anti-T, Tn and A(f) monoclonal antibodies.

Author Aida, M., K. Shinomiya, Y. Hano and T. Nomura

Title Artonin-j, artonin-k, and artonin-l, 3 new isoprenylated flavones from the root bar

Year 1993

Source title Heterocycles

Reference 36(3):, 575-583

Abstract

Three new isoprenylated flavones, artonins J (1), K (2), and L (3) were isolated from the root bark of Artocarpus heterophyllus Lamk. (Moraceae). The structures of artonins J, K, and L were shown to be 1, 2, and 3, respectively, on the basis of spectroscopic data. The model compound (5) was derived from cycloartobiloxanthone (4) by treatment with alkaline solution.

Author Aida, M., K. Shinomiya, Y. Hano and T. Nomura

Title Artonins j, k, and l. Three new isoprenylated flavones from the root bark of Artoc

Year 1993

Source title Heterocycles

Reference 36(3): 575

Abstract

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Author Amin, M. N. and V. S. Jaiswal

Title Invitro response of apical bud explants from mature trees of jackfruit (Artocarpus

Year 1993

Source title Plant Cell Tissue and Organ Culture

Reference 33(1): 59-65

Abstract

A tissue culture technique for rapid vegetative propagation of mature jackfruit trees using apical bud cultures has been developed. Shoot-tip cultures were established on MS medium with 5-10 mm explants dissected from terminal buds of new growth from trunk. After initial culture of bud explants, one- to two-node pieces were taken from the microshoots formed and used to proliferate further axillary shoots for multiplying and maintaining shoot cultures. Benzyladenine and kinetin (4.5-9.0 muM), either separately or together, supported shoot proliferation; higher concentrations of the cytokinins inhibited bud breaking and favoured callus formation at the explant bases. Bud explants taken from emerging trunk sprouts invariably produced clumps of multiple shoots, whereas buds obtained from actively growing top branches generally elongated to form a solitary shoot. November to January was the best season for initiation of cultures from field-grown trees. Shoots proliferated at the initial subcultures had mature morphology and were difficult-to-root. Shoots assumed to be juvenile-like developed at the later passages and could be rooted with 60-80% success using 1/2-MS salts and 10 muM of indolebutyric acid or naphthaleneacetic acid. Regenerated plantlets were transferred to the soil and about 50% survived.

Author Bishop, P. N., M. Boulton, D. Mcleod and R. W. Stoddart

Title Glycan localization within the human interphotoreceptor matrix and photoreceptor

Year 1993

Source title Glycobiology

Reference 3(4): 403-412

Abstract

Glycoconjugates are likely to be of fundamental importance in the complex interactions between photoreceptors and the retinal pigment epithelium, but few have been characterized, especially in human tissue. As a preliminary step towards determining their biological functions in health and disease, a lectin-based histochemical study of the glycan expression of human outer retina was performed on glutaraldehyde-fixed, semi-thin, resin-embedded sections. The interphotoreceptor matrix and photoreceptor plasma-lemmata expressed complex bisected and non-bisected biantennary and/or triantennary N-glycans. In addition, both the rod and cone outer segments bound strongly Galanthus nivalis agglutinin (which binds terminal Manalpha1, 3Man-) and the rod outer segments bound selectively the isolectin II of Bandeiraea simplicifolia (which binds terminal GlcNAc-). The cilia of the rods and cones were labelled selectively with Glycine max agglutinin after sialidase pretreatment. Four putative glycan outer sequences were identified within the interphotoreceptor matrix: (i) sialylated glycans with subterminal GalNAcalpha1,3GalNAc-sequences; (ii) a sialylated type with subterminal N-acetyl-lactosamine residues; (iii) Galbeta1,3GatNAcalpha1- residues which were substituted with sialic acid except in the cone matrix sheath; (iv) GalNAcalpha1,6Galbeta1- residues which were substituted in part with sialic acid. The sialic acid expression throughout was predominantly of the 2,3-linked form with lesser amounts of 2,6-linkage, and rod-associated structures (including the surrounding interphotoreceptor matrix) were labelled more strongly with the sialic acid-binding lectins than cone-associated structures (including the cone matrix sheath).

Author Chen, C. C., Y. L. Huang, J. C. Ou and C. F. Lin

Title Three new prenylflavones from Artocarpus altilis

Year 1993

Source title Journal of Natural Products

Reference 56(9): 1594

Abstract

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Author Chen, C. C., Y. L. Huang, J. C. Ou, C. F. Lin and T. M. Pan

Title 3 new prenylflavones from Artocarpus altilis

Year 1993

Source title Journal of Natural Products

Reference 56(9): 1594-1597

Abstract

Three new prenylflavones, isocyclomorusin [1], isocyclomulberrin [3], and cycloaltilisin [5], together with three known flavonoids, cyclomorusin [2], cyclomulberrin [4], and engeletin, were isolated from the stems of Artocarpus altilis (Moraceae). The structures of the new prenylflavones were determined by comparison with known related compounds and spectral analyses.

Author Chowdhury, S. and B. P. Chatterjee

Title Artocarpin galactomannan interaction - characterization of combining site of artoc

Year 1993

Source title Phytochemistry

Reference 32(2): 243-249

Abstract

Artocarpin, a lectin purified from Artocarpus lakoocha seeds, precipitates well several galactomannans having terminal D-Gal-alpha-(1-6)-residues. Quantitative precipitin-inhibition studies using various haptens suggest that the -OCH2- group at C-1 and hydroxyl groups at C-4, and partially at C-6, in the alpha-glycoside of D-galactose configuration are necessary for lectin-sugar interaction. The formation of an artocarpin-fenugreek galactomannan complex was dependent on temperature, pH, ionic strength and the number of hydroxy groups of alditols added to the medium.

Author Chuenchitt, S. and B. Witsamitanun

Title Bark canker: A new bacterial disease of champedak jack fruit (Artocarpus sp.)

Year 1993

Source title Biology and control of crop pathogens, Bogor; Indonesia

Reference Bogor Indonesia, 261-268 pp

Abstract

Author Das SC; Akhter S; Sayeed M

Title Chemical composition and water repellency property of ten village wood species

Year 1993

Source title Bangladesh Journal of Forest Science

Reference 22(1-2): 61-67

Abstract

A study on chemical analysis and water repellency properties of ten village wood species was conducted to find out the percentages of their chemical components. It was found that raintree (Samanea saman [Albizia saman]) possessed the highest amount of water soluble extractives. It was followed by babla (Acacia nilotica sub. indica), mango (Mangifera indica) and painya mandar (Erythrina ovalifolia). Neem (Azadirachta indica) and jackfruit (Artocarpus heterophyllus) contained the least amount of these kinds of extractives. Alcohol-benzene soluble extractives of the species fell in the range of 1.38-6.60% The holocellulose content was the highest in tentul (Tamarindus indica). Ghora neem (Melia azedarach) ranked the next in this respect. In consideration of the cellulose content, tentul, ghora neem, sissoo (Dalbergia sissoo), mango and babla may be suitable for chemical pulping and conversion products. These ten species were explored for water repellency. Neem was found to absorb the least amount of water. Sissoo, babla and tentul were found to absorb slightly more water. These species may be suitable both for indoor and outdoor uses. Sorption of water in the remaining six species was considerably higher and consequently they are deemed not suitable for outdoor uses.

Author Favero, J., P. Corbeau, M. Nicolas and M. Benkirance

Title Jacalin, a lectin from Artocarpus heterophyllus, interacts with the cd4 cell surface

Year 1993

Source title Lectins Biology Biochemistry Clinical Biochemistry

Reference 8: 334

Abstract

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Author Fownes JH; Raynor WC

Title Seasonality and yield of breadfruit cultivars in the indigenous agroforestry system

Year 1993

Source title Tropical Agriculture

Reference 70(2): 103-109

Abstract

Yield was recorded on 87 on-farm breadfruit [Artocarpus altilis) Fosberg] trees of five (Park. cultivars on Pohnpei Island during 1988. Cultivars varied in seasonality, growth form, and attributes, canopy volume was the best correlate of yield, followed closely by trunk diameter at 1.3 m. Site elevation and soil pH were significantly related to total number of fruits set tree(-1), but not the proportion of fruits dropped or harvestable yield. Total harvestable breadfruit yield unit(-1) of agroforest land was estimated to be 6.67 +/- 1.25 (95% C.I.) t ha(-1) yr(-1).

Author Fu, J. R., Q. H. Xia and L. F. Tang

Title Effects of desiccation on excised embryonic axes of 3 recalcitrant seeds and studi

Year 1993

Source title Seed Science and Technology

Reference 21(1): 85-95

Abstract

The drying of excised embryonic axes of lychee (Litchi chinensis Sonn.), longan (Euphoria longan Lour.) and jackfruit (Artocarpus heterophyllus Lam.) seeds was investigated. The effect of different drying methods on survival and growth of embryonic axes are somewhat different. By use of the silica gel and aseptic air current method, the moisture contents of axes of jackfruit seeds were reduced to a lower safe level and critical moisture content (16% and 26%) than that achieved by the vacuum method. There was no significant difference between the two different levels of air pressure (760 and 140 mm Hg/cm2) , during silica gel dehydration in the survival of excised axes of longan and lychee seeds. Excised embryonic axes of longan seeds can be dried down to a relatively low moisture content (13%) for maintaining viability, lower than that for lychee seeds. Only embryonic axes of longan seeds with moisture content of 18% can survive after 24 h storage in liquid nitrogen.

Author Fukai, T. and T. Nomura

Title H-1-nmr spectra of prenylated flavonoids and pyranoflavonoids

Year 1993

Source title Heterocycles

Reference 36(2): 329-343

Abstract

H-1 Nmr examination of prenylated flavonoids has shown that the presence of the prenyl group at C-3, C-6, or C-8 position of flavone can be deduced from the chemical shift of methylene protons of prenyl group measured in acetone-d6. The chemical shifts of olefinic proton on pyran ring and A ring proton can be used to distinguish between linear type pyranoflavone and angular type pyranoflavone. The application of this H-1 nmr method to the identification of Atalantia flavone and Artocarpus flavones is discussed.

Author Hano, Y., R. Inami and T. Nomura

Title Components of the bark of Artocarpus rigida bl. 2. Structures of four new isopren

Year 1993

Source title Heterocycles

Reference 35(2): 1341

Abstract

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Author Hano, Y., R. Inami and T. Nomura

Title Constituents of the moraceae plants .18. Components of the bark of Artocarpus rig

Year 1993

Source title Heterocycles

Reference 35(2): 1341-1350

Abstract

Four new isoprenylated flavone derivatives, artonins M (1), N (2), O (3), and P (4), were isolated from the bark of Artocarpus rigida Bl., an Indonesian moraceous plant. The structures of artonins M, N, O, and P were determined to be formulae 1, 2, 3, and 4, respectively, on the basis of spectroscopic studies and chemical evidence.

Author Hashim, O. H., G. S. Gendeh and M. I. N. Jaafar

Title Comparative analyses of iga1 binding lectins from seeds of 6 distinct clones of Ar

Year 1993

Source title Biochemistry and Molecular Biology International

Reference 29(1): 69-76

Abstract

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Author Hui, Y. and T. H. Czapla

Title Isolation and characterization of cdna clones encoding jacalin isolectins

Year 1993

Source title Journal of Biological Chemistry

Reference 268(8): 5905-5910

Abstract

Four jacalin cDNA clones (pSKcJA1, pSKcJA3, pSKcJA15, and pSKcJA17) have been obtained from an Artocarpus integrifolia (jackfruit) seed cDNA library. These clones share over 94% sequence homology, and their deduced polypeptide sequences confirm the existence of multiple jacalin isolectins in jackfruit seeds. The deduced amino acid sequences show that jacalin appears to be initially synthesized as a prepropeptide with the following structure: N-signal (21 residues) --> propeptide (39 residues) --> beta-peptide (20 residues) --> linker region (4 residues) --> alpha-peptide (133 residues). These observations are supported by Western blot analysis of jackfruit seed extract and by immunoprecipitation of in vitro translated products of both pSKcJA3 transcript and jackfruit seed poly(A)+ RNA. Sequence analysis of the 39-residue propeptide reveals that it has the potential to facilitate proper folding of jacalin protein. The unusual primary structure of jacalin prepropeptide suggests a quite interesting processing of this lectin precursor into mature alpha- and beta-subunits.

Author John, P. J. and P. Narasimham

Title Processing and evaluation of carbonated beverage from jackfruit waste (Artocarpu

Year 1993

Source title Journal of Food Processing and Preservation

Reference 16(6): 373-380

Abstract

Edible bulbs of ripe jackfruit (Artocarpus heterophyllus Lam.) are consumed for their fine taste and pleasant aroma. The edible portion is about 30% by weight. About 50% of fruit, composed of rind and unfertilized floral parts, which are also rich in jackfruit flavor, are usually discarded as waste, because they are fibrous. A process for the preparation of clarified juice has been developed and involves treatment of the jackfruit waste with pectic enzyme at 0.3% concentration (vw), incubation for 2 h at 40C and subsequent filtration, giving about 60% yield of clarified juice having 23-degrees-Brix and 0.15-0.20% acidity. Sensory evaluation of ready-to-serve (RTS) beverages (12% juice, 15-degrees-Brix sugars and 0.3% acidity) without and with carbonation at 3 levels (CO_2 gas pressures 0.775, 2.092 and 3.685 kg/cm2) by a 15-member trained panel revealed that the product was highly acceptable either without or with carbonation at 0.775 kg/cm2, compared to higher levels of carbonation. It is concluded that preparation of beverage from jackfruit waste as a byproduct, besides processing of bulbs and seeds, brings about the effective utilization of jackfruit to over 80%.

Author John, P. J., N. Balasubramanyam and P. Narasimham

Title Effect of packaging, processing and storage-conditions on the quality of raw jack f

Year 1993

Source title Journal of Food Processing and Preservation

Reference 17(2): 109-118

Abstract

"Ready to eat" raw jack fruit (Artocarpus heterophyllus Lam.) curry (pH 4.2), having acidic tomato gravy, packed in a flexible pouch with/without vacuum and heat processed in boiling water for 30 min, was stored at 3 different conditions, room temperature (28C), refrigerated low temperature (4C) and frozen state (-18C). The vacuum packed product, placed in a secondary pack of polyester/foil/polyethylene laminate had a storage life of 120, 270 and more than 360 days at 28, 4 and at -18C, respectively. The stored product was safe microbiologically and had an acceptable sensory quality.

Author Jones, C. J. P., C. A. Morrison and R. W. Stoddart

Title Histochemical analysis of rat testicular glycoconjugates .3. Nonreducing terminal

Year 1993

Source title Histochemical Journal

Reference 25(10): 711-718

Abstract

Lectins of Helix pomatia (HPA), Glycine max (SBA), Vicia villosa (VVA), Dolichos biflorus (DBA), Ulex europaeus (UEA-1), Tetragonolobus purpureus (LTA), Griffonia simplicifolia (BSA-1B4), Maclura pomifera (MPA), Sambucus nigra (SNA) and Maackia amurensis (MAA) were used to explore the distribution of saccharides characteristic of non-reducing termini of O- and N-linked glycoprotein glycans in the seminiferous tubules of rat testis. Sialyl residues (both alpha2,3- and alpha2,6-linked, as shown by MAA and SNA respectively) and alpha-L-fucosyl residues (shown by UEA-1 and LTA) were expressed on spermatogonia, spermatocytes and spermatozoa, but not on spermatids. In contrast, 2-deoxy-2-acetamido-alpha-D-galactosyl termini were abundant on spermatozoa, but not on any of their precursors (as shown by HPA, SBA and VVA). All occurred on both O- and N-linked glycans. - Sertoli cells expressed small amounts of fucose and alpha2,3-linked sialic acid, anti abundant alpha2,6 sialyl residues, largely on N-glycans. Alpha-galactosyl residues were readily detected on the tubular basement membrane, but not elsewhere.

Author Kabir, S., R. Aebersold and A. S. Daar

Title Identification of a novel 4-kda immunoglobulin-a-binding peptide obtained by the

Year 1993

Source title Biochimica et Biophysica Acta

Reference 1161(2-3): 194-200

Abstract

Jacalin, an IgA-binding lectin from jackfruit (Artocarpus heterophyllus) seeds, was isolated by the passage of PBS extracts of seeds over an affinity matrix containing IgA-Sepharose-4B. It was further purified by HPLC. When analyzed by SDS-PAGE under both reducing and nonreducing conditions, the native jacalin was dissociated into two subunits of 12 and 15.4 kDa. Both the subunits could bind IgA. Peptide mapping performed with radioiodinated jacalin indicated that both the subunits were susceptible to proteolysis by Staphyloccous aureus V8 proteinase. One degradation product was a small peptide of 4 kDa. This small proteolytic fragment also bound IgA. The amino-termini of the two major IgA binding subunits, 12 and 15.4 kDa, were identical. The 4 kDa IgA-binding proteolytic fragment of jacalin had a different amino-terminal sequence, suggesting that the region of jacalin which binds IgA does not remain close to the amino-terminus of the peptide.

Author Lin CN; Lu CM

Title Heterophylol, a phenolic compound with novel skeleton from Artocarpus heterop

Year 1993

Source title Tetrahedron Letters

Reference 34(51): 8249-8250

Abstract

From the root bark of Artocarpus Heterophyllus, a novel phenolic compound, heterophylol, was isolated and determined by spectroscopic methods.

Author Liou, S. S., W. L. Shieh, T. H. Cheng, S. J. Won and C. N. Lin

Title Gamma-pyrone compounds as potential anticancer drugs

Year 1993

Source title Journal of Pharmacy and Pharmacology

Reference 45(9): 791-794

Abstract

The gamma-pyrones, artomunoxanthotrione epoxide, cyclocommunol, cyclomulberrin, and cyclocommunin exhibited potent inhibition of human PLC/PRF/5 and KB cells in-vitro. Dihydroisocycloartomunin showed significant and potent inhibition of human PLC/PRF/5 and KB cells in-vitro, respectively. Cyclomorusin, dihydrocycloartomunin and artomunoxanthone showed significant inhibition of KB cells in-vitro. Based on the above finding and the reported antileukaemic activity of xanthone psorospermin, a series of natural gamma-pyrones was prepared and the inhibition of human PLC/PRF/5 and KB cells in-vitro was measured. Structure-activity analysis indicated the epoxide group substituted at 3-hydroxyl and 2,6-; 3,6-; and 3,5-dihydroxyl xanthone enhanced the anti-tumour activity. The epoxide group substituted at the 6-hydroxyl group of 1,6-dihydroxyxanthone did not show anti-tumour activity.

Author Lu, C. M. and C. N. Lin

Title Two 2',4',6'-trioxygenated flavanones from Artocarpus heterophyllus

Year 1993

Source title Phytochemistry

Reference 33(4): 909

Abstract

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Author Lu, C. M. and C. N. Lin

Title 2 2',4',6'-trioxygenated flavanones from Artocarpus heterophyllus

Year 1993

Source title Phytochemistry

Reference 33(4): 909-911

Abstract

Two novel 2',4',6-trioxygenated flavanones, heteroflavanones A and B, were isolated from the root bark of Artocarpus heterophyllus. Their structures were elucidated as 5-hydroxy-7,2',4',6'-tetramethoxyflavanone and 8-(gamma,gamma-dimethylallyl)5-hydroxy-7,2',4',6'-tetramethoxyflavanone.

Author Ngoc, L. D., M. Brillard and J. Hoebeke

Title The alpha-subunits and beta-subunits of the jacalins are cleavage products from a

Year 1993

Source title Biochimica et Biophysica Acta

Reference 1156(2): 219-222

Abstract

The jacalins of three Artocarpus species were purified by affinity chromatography on a desialylated mucin-CNBr-Sepharose 4B column. The beta-chains and the 14 kDa alpha-chains were separated by high pressure liquid chromatography and the 17 kDa chains by preparative electrophoresis. The 17 kDa and 14 kDa chains had a similar highly conserved N-terminal sequence. The beta-chains were different for the three species and Artocarpus champeden contained two different beta-chains. CNBr cleavage of the 17 kDa polypeptide of Artocarpus tonkinensis yielded one peptide more than the 14 kDa. The N-terminal sequence of this fragment was similar to that of the beta-chain proving that this chain results from a proteolytic cleavage at the C-terminus of the 17 kDa peptide. The large heterogeneity of the beta-chains of jacalins from different species could be used as a marker for evolutionary studies on the Artocarpus family.

Author Powell, A. D., L. K. Siu, M. Brown, P. P. Kumar and C. J. Goh

Title Characterization of the cotyledonary proteins of Artocarpus heterophyllus Lam. (j

Year 1993

Source title Plant Physiology

Reference 102(1): 74-74

Abstract

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Author Prasad, M.

Title Siwalik (middle miocene) woods from the Kalagarh area in the himalayan foot hil

Year 1993

Source title Review of Palaeobotany and Palynology

Reference 76(1): 49-82

Abstract

Eleven fossil wood species are described from the Siwalik sediments of the Kalagarh area in the Pauri Garhwal District of Uttar Pradesh, India. Among the species described, three are new. The fossil assemblage has affinities with extant Dipterocarpus tuberculatus and Hopea wightiana (Dipterocarpaceae), Sterculia coccinea and S. urens (Sterculiaceae), Bursera serrata (Burseraceae), Euphorea longana (Sapindaceae), Dialium indum and Millettia spp. (Fabaceae), Diospyros candoleana (Ebenaceae), and Artocarpus heterophylla and Ficus bengalensis (Moraceae). The fossil flora of Kalagarh indicates that tropical evergreen forests with rare moist deciduous plants were flourishing around Kalagarh during the Middle Miocene in contrast to the mixed deciduous type of the present-day forests. The occurrence of several Indo-Malayan taxa in this fossil assemblage indicates a fair exchange of floral elements between the two subcontinents during the Miocene.

Author Rai, S. N. and C. R. Sarma

Title Diameter increment in Artocarpus hirsuta, Dalbergia latifolia and Grewia tilaefoli

Year 1993

Source title Indian Forester

Reference 119(1): 11

Abstract

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Author Ray, S., H. Ahmed, S. Basu and B. P. Chatterjee

Title Purification, characterization, and carbohydrate specificity of the lectin of Ficus c

Year 1993

Source title Carbohydrate Research

Reference 242(Apr): 247-263

Abstract

A lectin, isolated from the seeds of Ficus cunia and purified by affinity chromatography on fetuin-Sepharose, was homogeneous in PAGE, GPC, HPLC, and immunodiffusion, and had mol wt of 3200-3500. In SDS-PAGE and HPLC in the absence and presence of 2-mercaptoethanol, the lectin gave a single band or peak corresponding to M(r) 3300-3500, thus indicating it to be a monomer. The lectin agglutinated human erythrocytes regardless of blood group, bound to Ehrlich ascites cells and to human rat spermatozoa, and was thermally stable; its activity was enhanced by Ca2+. The lectin is a metalloprotein that was inactivated by dialysis with EDTA followed by acetic acid, but reactivated by the addition of Ca2+. The lectin contained 2.0% of carbohydrates, large proportions of acidic amino acids, but little methionine. In hapten-inhibition assays, chitin oligosaccharides [(1 --> 4)-linked beta-GlcNAc] and N-acetyl-lactosamine were inhibitors of which N,N',N'',N'''-tetra-acetylchitotetraose was the most potent. Among the macromolecules tested that contain either multiple N-acetyl-lactosamine and/or (1 --> 4)/(1 --> 6)-linked beta-GlcNAc, asialofetuin glycopeptide was the most potent inhibitor. Thus, an N-acetyl group and substitution at C-1 Of D-GlcN are necessary for binding.

Author Serji, K. and K. S. Devi

Title Dietary fiber from Musa paradisiaca and Artocarpus heterophyllus on intestinal m

Year 1993

Source title Bulletin of Environmental Contamination and Toxicology

Reference 50(2): 293-299

Abstract

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Author Williams, L. A. D.

Title Adverse-effects of extracts of Artocarpus altilis bark and Azadirachta indica (Juss,

Year 1993

Source title Invertebrate Reproduction and Development

Reference 23(2-3): 159-164

Abstract

Adverse effects of extracts from the plants Artocarpus altilis and Azadirachta indica on egg laying and hatching in the tick Boophilus microplus were quantified. A 50 % inhibition of egg laying was achieved by a dose of 0.54 and 0.46 mug crude ethanol extract per tick, respectively. These doses also caused a 65% and 80% hatching failure, respectively. Extracts, particularly those of A. indica, inhibit protein and lipid sequestration by ovaries and oocytes. GC-MS analyses revealed reductions in the quantities of four methyl esters sequestered from the ovaries into the oocytes oviposited on the 12th day of engorgement by the treated ticks in the order of (A. indica effects are in parentheses): undecanoic acid 10-methyl-,methyl ester 40% (100%); tetradecanoic acid, methyl ester 100% (100%); tetradecanoic acid, 12-methyl-,methyl ester 100% (100%) and pentadecanoic acid, 14-methyl-, methyl ester 30% (75%).

Author Williams, L. A. D. and A. Mansingh

Title Pesticidal potentials of tropical plants .1. Insecticidal activity in leaf extracts of 60

Year 1993

Source title Insect Science and Its Application

Reference 14(5-6): 697-700

Abstract

Crude ethanol extracts (CE) of leaves of 60 plant species belonging to 32 families and 52 genera were bioassayed for toxicity to adult Tribolium confusum by spraying a 10% (w/v) concentrate under a Potter's tower. CE of eight plants had none and three had some bioactivity; 36 CE killed from 13 to 40% of the beetles. Thirteen plant extracts inflicted between 53 and 100% mortality in the following order: Azadirachta indica (53%) < Eupatorium odorantum = Gliricida sepium = Mimosa pudica (60%) < Annona reticulata = Hibiscus rosa sinensis (67%) < Cycloptis semicordata < Artocarpus altilis < Capsicum annum (90-97%) < Bontia daphnoides = Cuscuta americana = Dioscorea polygonoides = Nicotina tabacum (100%).

Author Young, R. E., L. A. D. Williams, M. T. Gardner and C. K. Fletcher

Title An extract of the leaves of the breadfruit Artocarpus altilis (Parkinson) fosberg ex

Year 1993

Source title Phytotherapy Research

Reference 7(2): 190-193

Abstract

Ethyl acetate soluble extracts from the leaves of the breadfruit Artocarpus altilis exerted a weak, negative chronotropic effect ($p<0.05$) and significantly reduced left ventricular pulse pressure ($p<0.001$) in vivo in the rat. The electrocardiogram maintained a high amplitude QRS complex (ventricular excitation) even when the ventricular pressure pulse was very depressed. On right ventricular myocardial strips, the same extracts produced a significant negative inotropic effect ($p<0.0001$). This indicates that the in vivo effects might be due in part, to a direct inotropic effect on the myocardium. An in vivo side effect was extensive intravascular haemolysis and consequent haemoglobinuria which could be caused by the vehicle, the extract, or a combined effect of the two. The mechanism of action of the inotropic agent was not cholinergic, and may involve a decoupling of excitation and contraction.

Author Zanetti, M., G. Lenert and G. F. Springer

Title Idiotypes of preexisting human anti-carcinoma anti-t and anti-tn antibodies

Year 1993

Source title International Immunology

Reference 5(2): 113-119

Abstract

All humans normally possess antibodies, predominantly IgM, that react specifically with the Thomsen - Friedenreich (T) and the Tn antigens which are present in immunoreactive form on >85% of all human carcinomas, but not in healthy and otherwise diseased tissues. We report here a serological study of idiotype expression and antigen reactivity of the anti-T and anti-Tn antibodies. Idiotypy was analyzed with rabbit antibodies raised against, and made specific for, affinity-purified polyclonal anti-T and anti-Tn antibodies from blood group A,B healthy adult donors. Anti-T and anti-Tn antibodies cross-reacted idiotypically in spite of their distinct epitope specificities. By adsorbing anti-T antibodies on insolubilized synthetic T carbohydrate we could firmly link idiotype expression with antigen reactivity. The relation of idiotype expression to the antigen-binding site of plant seed lectins was also studied; one originated from Arachis hypogaea [peanut agglutinin (PNA)], the other from Artocarpus integrifolia (Jacalin). PNA inhibited only anti-T antibodies. Jacalin inhibited both anti-T and anti-Tn antibodies in a dose-dependent manner. Neither idiotypic nor anti-idiotypic antibodies diminished the binding of lectins to T and Tn epitopes. The shared idiotypes on natural anti-T and anti-Tn antibodies permit consideration of application of their anti-idiotypes in treatment and/or prevention of human carcinoma.

Author Coatesbeckford, P. L. and M. J. Pereira

Title Survey of root-inhabiting microorganisms on declining and nondeclining breadfru

Year 1992

Source title Nematropica

Reference 22(1): 55-63

Abstract

A survey of phytoparasitic nematodes, fungi, and bacteria associated with roots of breadfruit (Artocarpus altilis) trees was conducted in Jamaica in 1991. Eighteen trees sampled did and 12 did not exhibit decline, characterized by premature fruit drop, leaf chlorosis and abscission, general unthriftiness, and branch dieback. Most trees of each category were parasitized by dense populations of Pratylenchus coffeae. Helicotylenchus erythrinae, H. multicinctus, and Meloidogyne incognita also occurred within roots in large populations. Fusarium species (F. equiseti, F. oxysporum, F. pallido-roseum, and F. solani) were detected frequently. Pseudomonas spp. occurred in most root samples, and all roots had vesicular-arbuscular mycorrhizae. Physical and chemical characteristics of the soil and nutrient concentrations within leaves were not relatable to tree health. Most trees exhibiting decline symptoms were more than 20 years old.

Author Demirandasantos, I. K. F., M. Delgado, P. V. Bonini, M. M. Bunnmoreno and A.

Title A crude extract of Artocarpus integrifolia contains 2 lectins with distinct biologic

Year 1992

Source title Immunology Letters

Reference 31(1): 65-72

Abstract

The crude extract derived from seeds of Artocarpus integrifolia (jack fruit) contains two fractions with different biological activities for lymphocytes. One fraction is the D-galactose-binding lectin, jacalin, obtained by affinity purification on a D-galactose agarose column. The other, which is a component of the flow-through fraction (FT), is responsible for the mitogenic activity observed with human PBMC and murine spleen cells. In contrast, jacalin inhibits FT- and ConA-induced proliferative activity of human PMBC and murine spleen cells. This inhibition is not due to toxicity, because: (1) jacalin induces significant levels of IL-3/GM-CSF but not of IL-2 and/or IL-4 in murine spleen cells; (2) jacalin does not affect the capacity of these cells to secrete IL-2 or IL-4 as supernatants obtained from spleen cells sequentially stimulated with jacalin and ConA contain IL-2 and/or IL-4 as well as IL-3/GM-CSF. The ligand for the mitogen contained in the FT fraction is D-mannose as determined by sugar inhibition studies.

Author Gollahon, K., B. Greenfield and C. Porter

Title Crude extract of Artocarpus heterophyllus and phorbol esters accelerate stromal c

Year 1992

Source title Experimental Hematology

Reference 20(1): 115-116

Abstract

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Author Gupta, D., N. V. S. A. V. P. Rao, K. D. Puri, K. L. Matta and A. Surolia

Title Thermodynamic and kinetic-studies on the mechanism of binding of methylumbel

Year 1992

Source title Journal of Biological Chemistry

Reference 267(13): 8909-8918

Abstract

The binding of Artocarpus integrifolia lectin (jacalin) to 4-methylumbelliferyl (Meumb)-glycosides, Gal-alpha-Meumb, Gal-beta-Meumb, GalNAc-alpha-Meumb, GalNAc-beta-Meumb, and Gal-beta-3GalNAc-beta-Meumb was examined by extrinsic fluorescence quenching titration and stopped flow spectrofluorimetry. The binding was characterized by 100% quenching of fluorescence of Meumb-glycosides. Their association constants range from 2.0 x 10(4) to 1.58 x 10(6) M-1 at 15-degrees-C. Entropic contribution is the major stabilizing force for avid binding of Meumb-glycosides indicating the existence of a hydrophobic site that is complementary to their methylumbelliferyl group. The second order association rate constants for interaction of these sugars with lectin at 15-degrees-C vary from 8.8 x 10(5) to 3.24 x 10(6) M-1 s-1, at pH 7.2. The first order dissociation rate constants range from 2.30 to 43.0 s-1 at 15-degrees-C. Despite the differences in their association rate constants, the overall values of association constants for these saccharides are determined by their dissociation rate constants. The second order rate constant for the association of Meumb-glycosides follows a pattern consistent with the magnitude of the activation energies involved therein. Activation parameters for association of all ligands illustrate that the origin of the barrier between binding of jacalin to Meumb-glycosides is entropic, and the enthalpic contribution is small. A correlation between these parameters and the structure of the ligands on the association rates underscores the importance of steric factors in determining protein saccharide recognitions.

Author Hano, Y., M. Aida, T. Nomura and S. Ueda

Title A novel way of determining the structure of artonin-i, an optically-active diels-ald

Year 1992

Source title Journal of the Chemical Society-Chemical Communications

Reference (17) 1177-1178

Abstract

The structure of artonin I, an optically active Diels-Alder type adduct from Artocarpus heterophyllus, an Indonesian moraceous plant, was established utilizing the enzyme system of Morus alba cell cultures which specifically produce the natural Diels-Alder type adducts, as well as spectroscopic evidence.

Author Hashim, O. H., K. Kobayashi and N. Taniguchi

Title Interaction of artocarpus lectins with human-iga does not involve asparagine-linke

Year 1992

Source title Biochemistry International

Reference 27(3): 423-429

Abstract

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Author Lien, D. N., I. M. Cesari, I. Bouty, D. Bout and J. Hoebeke

Title Immunocapture assay for quantification of human-iga antibodies to parasite antige

Year 1992

Source title Journal of Immunoassay

Reference 13(4): 521-536

Abstract

Conditions are described for using solid phase adsorbed jacalins in an immunocapture assay for IgA antibodies to the alkaline phosphatase of Schistosoma mansoni . Microtiter plates were activated with polylysine and jacalins were covalently adsorbed by means of glutaraldehyde. From three different jacalins, the one purified from seeds of Artocarpus tonkinensis showed the lowest non-specific adsorption and was used for further studies. Comparing solutions of bovine serum albumin, ovalbumin and Tween 20, it was shown that the latter was most successful in blocking non-specific adsorption. Low serum dilutions resulted in a less efficient IgA capture by the adsorbed jacalin than higher dilutions. Under optimal working conditions, a high correlation could be shown between the presence of specific anti - alkaline phosphatase antibodies of IgA isotype and IgG isotype.

Author Lin, C. N. and W. L. Shieh

Title The bioactive principles of formosan artocarpus species .4. Pyranoflavonoids fro

Year 1992

Source title Phytochemistry

Reference 31(8): 2922-2924

Abstract

From the root bark of Artocarpus communis, a known compound, cyclomulberrin, and three new pyranoflavonoids, named cyclocommunol, cyclocommunin and dihydroisocycloartomunin, respectively, were isolated and characterized.

Author Lin, C. N., W. L. Shieh and T. T. Jong

Title The bioactive principles of formosan artocarpus species .3. A pyranodihydrobenz

Year 1992

Source title Phytochemistry

Reference 31(7); 2563-2564

Abstract

From the root bark of Artocarpus communis, a novel pyranodihydrobenzoxanthone epoxide, named artomunoxanthotrione epoxide, was isolated and determined by spectroscopic methods, chemical reaction, and X-ray crystallographic analysis.

Author Mahanta, S. K., S. Sanker, N. V. S. A. V. P. Rao, M. J. Swamy and A. Surolia

Title Primary structure of a thomsen-friedenreich-antigen-specific lectin, jacalin [Artoc

Year 1992

Source title Biochemical Journal

Reference 284(May): 95-101

Abstract

Jacalin [Artocarpus integrifolia (jack fruit) agglutinin] is made up of two types of chains, heavy and light, with M(r) values of 16200 +/- 1200 and 2090 +/- 300 respectively (on the basis of gel-permeation chromatography under denaturing conditions). Its complete amino acid sequence was determined by manual degradation using a 4-dimethylaminoazo-benzene 4'-isothiocyanate double-coupling method. Peptide fragments for sequence analysis were obtained by chemical cleavages of the heavy chain with CNBr, hydroxylamine hydrochloride and iodosobenzoic acid and enzymic cleavage with Staphylococcus aureus proteinase. The peptides were purified by a combination of gel-permeation and reverse-phase chromatography. The light chains, being only 20 residues long, could be sequenced without fragmentation. Amino acid analyses and carboxypeptidase-Y-digestion C-terminal analyses of the subunits provided supportive evidence for their sequence. Computer-assisted alignment of the jacalin heavy-chain sequence failed to show sequence similarity to that of any lectin for which the complete sequence is known. Analyses of the sequence showed the presence of an internal repeat spanning residues 7-64 and 76-130. The internal repeat was found to be statistically significant.

Author Puri, K. D., B. Gopalakrishnan and A. Surolia

Title Carbohydrate binding-specificity of the tn-antigen binding lectin from Vicia villos

Year 1992

Source title Febs Letters

Reference 312(2-3): 208-212

Abstract

2-Dansylamino-2-deoxy-D-galactose (GalNDns) is a useful fluorescent probe to study the interaction of non-fluorescent sugars with the B4 lectin fro- Vicia villosa seeds (VVLB4). Binding of the lectin to GalNDns leads to a 5.2-fold increase in Dansyl fluorescence with a concomitant 10 nm blue shift in its emission maximum. The strong binding of GalNDns (K(a) = 7.33 x 10(4) M-1 at 20-degrees-C) is due to a favourable entropic contribution to the association process. Among the other sugars studied, GalNAcalpha1-O-Ser followed by MealphaGalNAc are the best ligands. 2-Deoxygalactose, galactosamine and galactose are 2013, 469 and 130 times weaker ligands, respectively, as compared to GalNAc, whereas GalNDns is about 2.44 times more potent than GalNAc, indicating that substitutions at the C-2 position of GalNAc have a considerable influence on the binding affinities. Equatorial orientation of the hydroxyl group at C-3 and axial orientation at C4 as in galactose are important for the interaction with VVLB4. The C-6 hydroxyl group is not indispensable. The binding site of the lectin is directed exclusively towards monosaocharides alone. Interestingly enough, despite its preference for MealphaGalNAc over MebetaGalNAc, in oligosaccharides, the lectin prefers terminal beta-linked GalNAc as compared to the alpha-linked one.

Author Roy, S. K.

Title Micropropagation of jackfruit (Artocarpus heterophyllus)

Year 1992

Source title Asia-Pacific conference on agricultural biotechnology, Beijing

Reference China Science and Technology Press, 443-446 pp

Abstract

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Author Roy, S. K., M. S. Islam, J. Sen and S. Hadiuzzaman

Title Effects of auxins, sucrose and agar concentrations on invitro rooting of callus-ind

Year 1992

Source title Bangladesh Journal of Botany

Reference 21(1): 93-98

Abstract

Different concentrations and combinations of various auxins namely. Indole-3-acetic acid (IAA), Indole - 3 - butyric acid (IBA) and napthalene acetic acid (NAA) were used in cmbination to study their effects on in vitro rooting of callus induced shoots of Jackfruit. Amongst various combinations an optimum dose was established containing a concentration of 0.1 mgl-1 each of IAA, IBA, and NAA. A higher concentration of sucrose (35 gl-1) to the medium was found to enhance the development of roots.

Author Ruffet, E., N. Paquet, S. Frutiger, G. J. Hughes and J. C. Jaton

Title Structural and electron-microscopic studies of jacalin from jackfruit (Artocarpus i

Year 1992

Source title Biochemical Journal

Reference 286(Aug): 131-134

Abstract

The 133-amino-acid sequences of the alpha-subunit of jacalin (a lectin from Artocarpus integrifolia) and of the slightly larger alpha'-subunit were determined. The alpha'- and alpha-subunits, in the approximate ratio of 1:3, were found to be virtually identical in their primary structures, except for one valine for isoleucine substitution at position 113. Although both alpha'- and alpha-chains were glycosylated, the extent of glycosylation in the alpha'-chain was much greater than that in the alpha-subunit. In the alpha'-polypeptide, all molecules contained an N-linked oligosaccharide at position 74 and some contained sugar at position 43. The alpha-and alpha'-subunits were found to be strongly non-covalently associated with three distinct beta-subunits containing 20 amino acids each. Electron-microscopic visualization of native jacalin disclosed a structure composed of four alpha-type subunits with a clear-cut 4-fold symmetry. Analytical-ultracentrifugation studies of jacalin revealed an average molecular mass of 65 kDa, a value compatible with a tetrameric structure of the alpha(alpha')-subunits. The recalculated number of sugar-binding sites per jacalin molecule, given a molecular mass of 65 kDa, would yield 0.8 sites per alpha((alpha')-promoter, i.e. about twice the value previously determined [Appukutan & Basu (1985) FEBS Lett. 180, 331-334 ; Ahmed & Chatterjee (1989) J. Biol. Chem. 264, 9365-9372].

Author Sathyanarayana, B. N. and J. Blake

Title Effect of nitrogen sources and initial ph of the media with or without buffer on in

Year 1992

Source title Physiology, Growth and Development of Plants in Culture, Lancaster

Reference Kluwer, 77-82 pp

Abstract

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Author Seow, C. C. and G. Shanmugam

Title Storage stability of canned jackfruit (Artocarpus heterophyllus) juice at tropical te

Year 1992

Source title Journal of Food Science and Technology (Mysore)

Reference 29(6):, 371-374

Abstract

Internal plain tinplate can corrosion and depletion of vitamin C in canned jackfruit juice, with or without added nitrate, were found to follow zero-order kinetics during storage at 30-degrees-50-degrees-C. The activation energy followed the order of iron dissolution > tin dissolution > vitamin C depletion. The presence of nitrate accelerated all three processes without significantly ($P<0.05$) affecting the E(a) values. Based on a maximum permissible tin level of 250 mg/kg, tin dissolution appeared to be the predominant factor limiting the shelf-life of the product rather than depletion of vitamin C. It was estimated that properly processed jackfruit juice packed in plain tinplate cans could keep well for > 17 months at storage temperatures < 30-degrees-C and in the absence of corrosion accelerators such as nitrates.

Author Serudin D. S, H. J. and H. J. Tinggal

Title Tarap (Artocarpus odoratissimus): Potential tropical fruit for food product opport

Year 1992

Source title Acta Horticulturae

Reference 106:

Abstract

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Author Shieh, W. L. and C. N. Lin

Title The bioactive principles of formosan Aartocarpus species .2. A quinonoid pyrano

Year 1992

Source title Phytochemistry

Reference 31(1): 364-367

Abstract

From the root bark of Artocarpus communis, two known compounds, beta-sitosterol and cudraflavone A, a new triterpenoid ester, lupeol acetate, a new pyranodihydrobenzoxanthone, named artomunoxanthone, and a novel quinonoid pyranobenzoxanthone, named artomunoxanthentrione were further isolated and characterized.

Author Wong, K. C., C. L. Lim and L. L. Wong

Title Volatile flavour constituents of chempedak (Artocarpus polyphema Pers.) fruit an

Year 1992

Source title Flavour and Fragrance Journal

Reference 7(6): 307

Abstract

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Author Wood, S. L.

Title Nomenclatural changes and new species in platypodidae and scolytidae (Coleopte

Year 1992

Source title Great Basin Naturalist

Reference 52(1): 78-88

Abstract

In Platypodidae the new name Genyocerus strohmeyeri replaced the junior homonym G. albipennis Strohmeyer, 1942, and the new name Platypus applanatulus replaced the junior homonym Platypus applanatus Schedl, 1976. New names are presented in Scolytidae as replacements for junior homonyms as follows: Cryphalus brownei for Cryphalus artocarpus Schedl, 1958; Cyclorhipidion dihingicum for Xyleborus dihingensis Schedl, 1951; Hypothenemus aterrimulus for Lepiceroides (now Hypothenemus) aterrimus Schedl, 1957; Hypothenemus krivolutskayae for Hypothenemus insularis Krivolutskaya; Pityophthorus africanulus for Neodryocoetes (now Pityophthorus) africanus Schedl, 1962; Scolytogenes papuensis for Xylocryptus (now Scolytogenes) papuanus Schedl, 1975; Scolytogenes paradoxus for Scolytogenes papuanus Schedl, 1979; Xyleborinus spiniposticus for Eidophelus (now Xyleborinus) spinipennis Schedl, 1979; Xyleborus formosae for Xyleborus formosanus Browne, 1981. New combinations for fossil Scolytidae include Dryocoetes diluvialis for Pityophthoroidea diluvialis Wickham, 1916, and Hylesinus hydropicus for Apidocephalus hydropicus Wickham, 1916. Phloeotribus zimmermanni Wickham, 1916, is transferred to the family Curculionidae. In Scolytidae, Cryphalophilus Schedl, 1970, is a junior generic synonym of Scolytogenes Eichhoff; Macrocryphalus Nobuchi, 1981, is a junior generic synonym of Hypothenemus Westwood, 1836; Nipponopolygraphus Nobuchi, 1981, is a junior generic synonym of Polygraphus Erichson, 1836; Pseudocosmoderes Nobuchi, 1981, is a junior generic synonym of Cosmoderes Eichhoff, 1878; Taphrocoetes Pfeffer, 1987, is a junior generic synonym of Taphrorychus Eichhoff; Trypanophellos Bright, 1982, is a junior generic synomym of Liparthrum Wollaston. New specific synonymy in Scolytidae includes: Brachyspartus moritzi Ferrari (= Corthylus obtusus Schedl), Carphoborus minimus (Fabricius) (= Carphoborus balgensis Murayama), Coccotrypes dactyliperda (Fabricius) (= Coccotrypes tropicus Eichhoff), Cryphalus scabricollis Eichhoff (= Cryphalus brevicollis Schedl), Ficicis despects (Walker) (= Hylesinus samoanus Schedl), Hylastes plumbeus Blandford (= Hylurgops fushunensis Murayama), Hylurgops interstitialis (Chapuis) (= Hylurgops niponicus Murayama), Hylurgops spessivtsevi Eggers (= Hylurgops modestus Murayama), Ips stebbingi Strohmeyer (= Ips schmutzenhoferi Holzschuh), Phloeosinus rudis Blandford (= Phloeosinus shotoensis Murayama, Polygraphus kaimochi (Nobuchi) (= Polygraphus querci Wood), Polygraphus proximus Blandford (= Polygraphus magnus Murayama), Scolytogenes braderi Browne (= Scolytogenes orientalis Schedl), Scolytoplatypus parvus Sampson (= Scolytoplatypus ruficauda Eggers), Sphaerotrypes querci Stebbing (= Chramesus globulus Stebbing, Sphaerotrypes tectus Beeson), Sueus niisimai (Eggers) (= Sphaerotrypes controversae Murayama), Tomicus brevipilosus (Eggers) (= Blastophagus khasianus Murayama, Blastophagus multisetosus Murayama). The European Hylastes opacus Erichson is reported as an established breeding population in New York (USA): Phloeosinus armatus Reitter of Asia Minor is reported as causing economic damage as a new introduction to Los Angeles County, California. The following species are named as new to science: - Cyclorhipidion subagnatum (Philippine Islands), Dendrotrupes zealandicus (New Zealand), Polygraphus thitsi (Burma), Triotemnus pilicornis (India), and Xyleborus magnificus (Peru).

Author Annapurna, S. S. and D. S. Prasad

Title Purification of trypsin chymotrypsin inhibitor from jack fruit seeds

Year 1991

Source title Journal of the Science of Food and Agriculture

Reference 54(3): 399-411

Abstract

A trypsin/chymotrypsin inhibitor (JSTI) was isolated from jack fruit seeds (Artocarpus integrifolia Hook f) by ammonium sulphate fractionation and chromatography on DEAE-cellulose and Sephadex G-100. During all stages of purification, the ratio of trypsin and chymotrypsin inhibitory activities remained constant. The purified preparation was found to be homogeneous by gel filtration, polyacrylamide gel electrophoresis (PAGE) and ultracentrifugation. From the sedimentation coefficient, S20,w value of 3.5 +/- 0.15 S, the molecular weight of JSTI was calculated to be 30.00 +/- 2.50 kamu. The inhibitor showed a molecular weight of 24.55 kamu on a Sephadex G-75 column when eluted with 6 M guanidine hydrochloride. Under non-denaturing conditions, JSTI exhibited anomalous behaviour on a Sephadex G-200 column. On SDS-PAGE, the inhibitor showed two major bands with molecular weights of 26.30 and 15.00 kamu and two minor bands with molecular weights of 19.50 and 12.00 kamu. The carboxyamidomethylated JSTI showed three trypsin inhibitory activity bands on PAGE, suggesting the presence of isoinhibitors.

Author Annapurna, S. S., C. S. Ramadoss and D. S. Prasad

Title Characterization of a trypsin chymotrypsin inhibitor from jack fruit (Artocarpus in

Year 1991

Source title Journal of the Science of Food and Agriculture

Reference 54(4): 605-618

Abstract

Jack fruit seed (Artocarpus integrifolia Hook f) trypsin inhibitor (JSTI) was found to be rich in acidic amino acids and devoid of free thiol groups. The N-terminal and C-terminal amino acids of JSTI were aspartic acid and serine, respectively. The inhibitor was stable under conditions of extremes of pH (3.0-12.0), at high temperatures and in the presence of denaturing agents. JSTI showed a non-competitive type of inhibition with K(i) values of 0.48 +/- 0.17 nM and 0.16 +/- 0.04 nM for trypsin and chymotrypsin, respectively. The JSTI-trypsin complex exhibited chymotrypsin inhibitory activity suggesting the 'double-headed' nature of the inhibitor. Chemical modification of lysine residues resulted in loss of trypsin and chymotrypsin inhibitory activities of JSTI indicating that amino groups are essential for activity.

Author Bakry, N., Y. Kamata and L. L. Simpson

Title Lectins from Triticum vulgaris and Limax flavus are universal antagonists of botu

Year 1991

Source title Journal of Pharmacology and Experimental Therapeutics

Reference 258(3): 830-836

Abstract

Lectins from Anguilla anguilla, Artocarpus integrifolia, Canavalia ensiformis, Datora stramonium, Glycine max, Limax flavus, Ricinus communis and Triticum vulgaris were tested for their abilities to antagonize the binding of botulinum neurotoxin and tetanus toxin to rat brain membranes and to antagonize the ability of these toxins to block neuromuscular transmission in mouse phrenic nerve-hemidiaphragm preparations. Lectins from Limax flavus and Triticum vulgaris, both of which have affinity for sialic acid, were antagonists of the various serotypes of botulinum neurotoxin and tetanus toxin. When tested against the high affinity binding site for botulinum neurotoxin type B, the lectin from Limax flavus had a K(i) of 3.1 x 10(-7) M and the lectin from Triticum vulgaris had a K(i) of 3.75 x 10(-7) M. When tested against the high affinity binding site for tetanus toxin, the lectins from Limax flavus and Triticum vulgaris had K(i) values of 1.5 x 10(-7) and 1 x 10(-6) M, respectively. In all cases the lectins behaved as competitive antagonists. In reverse experiments, neither botulinum toxin nor tetanus toxin was a very effective antagonist of lectin binding to brain membranes. Studies on isolated neuromuscular preparations showed that the lectin from Triticum vulgaris did not affect transmission at concentrations of 10(-6) to 10(-3) M, but at a concentration of 3 x 10(-5) M the lectin produced highly statistically significant antagonism of the neuromuscular blocking properties of botulinum neurotoxin types A, B, C, D, E and F as well as tetanus toxin. The lectin did not antagonize beta-bungarotoxin. Pharmacologic experiments indicated that the lectins were acting at the level of the membrane receptor to produce antagonism of clostridial toxins.

Author Banerjee, R., V. Dhanaraj, S. K. Mahanta, A. Surolia and M. Vijayan

Title Preparation and x-ray characterization of 4 new crystal forms of jacalin, a lectin fr

Year 1991

Source title Journal of Molecular Biology

Reference 221(3): 773-776

Abstract

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Author Chowdhury, S., H. Ahmed and B. P. Chatterjee

Title Chemical modification studies of Artocarpus lakoocha lectin artocarpin

Year 1991

Source title Biochimie

Reference 73(5): 563-571

Abstract

The effect of chemical modification on an anti T-like lectin, artocarpin isolated from Artocarpus lakoocha seeds was investigated in order to identify the type of amino acids involved in its agglutinating activity. Modification of carboxyl groups, arginine and lysine residues, did not affect the lectin activity. However, modification of tryptophan, tyrosine and histidine residues led to a complete loss of its activity, indicating the involvement of these amino acids in the saccharide-binding ability. A protection was observed in the presence of inhibitory sugar. A marked decrease in the fluorescence emission was found when the tryptophan residues of lectin were modified. The circular dichroism spectra showed the presence of an identical pattern of conformation in the native and modified lectin, indicating that the loss in activity was due to modification only. The effect of pronase on artocarpin showed loss of activity whereas papain and trypsin had no effect. The specific activity of artocarpin remained unaltered on treatment with glycosidases but remarkable increase in the activity (of the same) was observed with xylanase treatment. Immunodiffusion studies with chemically modified lectin showed no gross structural changes, indicating that the group specific modifying agents did not alter the antigenic sites of the modified lectin.

Author Fernando, M. R., S. M. D. N. Wickramasinghe, M. I. Thabrew, P. L. Ariyananda a

Title Effect of Artocarpus heterophyllus and Asteracanthus longifolia on glucose-tolera

Year 1991

Source title Journal of Ethnopharmacology

Reference 31(3): 277-282

Abstract

Investigations were carried out to evaluate the effects of hot-water extracts of Artocarpus heterophyllus leaves and Asteracanthus longifolia whole plant material on the glucose tolerance of normal human subjects and maturity-onset diabetic patients. The extracts of both Artocarpus heterophyllus and Asteracanthus longifolia significantly improved glucose tolerance in the normal subjects and the diabetic patients when investigated at oral doses equivalent to 20 g/kg of starting material.

Author Griffith, C. M. and E. J. Sanders

Title Changes in glycoconjugate expression during early chick-embryo development - a

Year 1991

Source title Anatomical Record

Reference 231(2): 238-250

Abstract

A selection of lectins was used to investigate developmentally regulated changes in the distribution of cell surface oligosaccharides during the gastrulation and neurulation stages of early chick embryo development. Lectins from three specificity classes were used: glucose/mannose specificity (concanavalin A [Con A], Lens culinaris agglutinin [LCA], Pisum sativum agglutinin [PSA]); N-acetylglucosamine specificity (Lycopersicon esculentum agglutinin [LEA], wheat germ agglutinin [WGA], succinylated WGA [sWGA]); N-acetylgalactosamine/galactose specificity (Dolichos biflorus agglutinin [DBA], soybean agglutinin [SBA], Sophora japonica agglutinin [SJA], Bandeiraea (Griffonia) simplicifolia lectin I [BSL I], peanut agglutinin [PNA], Artocarpus integrifolia lectin [Jacalin], Ricinus communis agglutinin-1 [RCA-1], Erythrina cristagalli lectin [ECL]). At gastrulation stages, patterns of lectin binding could be distinguished in the epiblast, mesoderm, and endoderm cell layers. The primitive streak failed to bind any of the lectins, but LEA and WGA bound to the epiblast in regions lateral to the streak, indicating the loss of some glucosamine residues medially in preparation for the ingression movements of gastrulation. Several lectins showed marked binding to the mesoderm cells after their passage through the primitive streak; these were LCA, PSA, WGA, sWGA, BSL, and most particularly PNA. Therefore, the epithelial-mesenchymal transformation from epiblast to mesoderm at the primitive streak is accompanied by cell surface oligosaccharide changes in the epiblast and mesoderm that involve all classes of lectins including the PNA-binding sequence Gal-beta-1-3GalNAc. Ultrastructurally, PNA was shown to bind extracellularly to matrix fibrils. Jacalin, having the same sugar specificity as PNA, but binding to serine/threonine linked chains rather than asparagine linked chains showed no binding to the mesoderm. The endoderm layer most clearly bound WGA and BSL. - At neurulation stages, medio-lateral domains in the ectoderm could again be demonstrated. Neural plate cells bound only PNA, although the hinge point of the neural plate, the future floor plate, failed to bind PNA unless pre-treated with neuraminidase to remove sialic acid residues. Caudally, where the primitive streak persisted, all mesoderm cells reacted very strongly with PNA, but rostrally this binding became more restricted to the mesodermal regions immediately adjacent to the streak. This mesodermal PNA-binding was abolished by hyaluronidase pre-treatment, suggesting extracellular matrix association, whereas the neural plate binding was unaffected by this treatment, suggesting a more intimate developmentally regulated association with the cell surface of early neural cells. Neuraminidase treatment and sWGA-binding indicated patterns of sialylation on cells of several tissues at the later stages of development. These sialic acid residues had the effect of masking both PNA and ECL reactivity. The latter, specific for sequences of the poly-N-lactosamine series, (Gal-beta-1-4GlcNAc)n, bound to mesoderm only after removal of sialic acids. Basement membranes bound lectins of glucose/mannose and galactose specificities at both stages, and RCA-binding was localized ultrastructurally to the fibronectin-rich interstitial bodies of the lamina densa.

Author Hano, Y., P. Mitsui, T. Nomura, T. Kawai and Y. Yoshida

Title 2 new dihydrochalcone derivatives, antiarone j and antiarone k from the root bark

Year 1991

Source title Journal of Natural Products

Reference 54(4): 1049-1055

Abstract

Two new dihydrochalcone derivatives, antiarones J [1] and K [2], were isolated from the MeOH extract of the root bark of Antiaris toxicaria. The structure of antiarone J was identified on the basis of spectroscopic data, and the structure of antiarone K was determined on the basis of X-ray crystallographic analysis and spectroscopic data. Antiarones J and K are regarded as chalcone derivatives having an isoprenoid moiety at the C-2 position.

Author Hashim, O. H., C. L. Ng, G. S. Gendeh and M. I. N. Jaafar

Title Iga binding lectins isolated from distinct Artocarpus species demonstrate different

Year 1991

Source title Molecular Immunology

Reference 28(4-5): 393-398

Abstract

The discovery of jacalin, a group of lectins from jackfruit seeds (Artocarpus heterophyllus), has attracted considerable attention due to its numerous interesting immunological properties as well as its usefulness in the isolation of various serum proteins. We have further identified a similar lectin from the seeds of Champedak (Artocarpus integer) which we refer to as lectin-C and performed comparative studies with two types of jacalin isolated from different batches of the Malaysian jackfruit seeds (jacalin-M1 and jacalin-M2). The three purified lectins demonstrated equivalent apparent M(r) of about 52,500, each of which comprised of a combination of two types of non-covalently-linked subunits with apparent M(r) of approximately 13,300 and 16,000. The lectins demonstrated equal haemagglutinating activity against human erythrocytes of blood groups A, B, AB and O. Our data also demonstrated that lectin-C, jacalin-M1 and jacalin-M2 are similar by selectively precipitating human serum IgA1 and colostral sIgA but not IgA2, IgD, IgG and IgM. When immunoelectrophoresis was performed on normal human sera and reacted with the lectins, single precipitin arcs corresponding to IgA immunoprecipitates were detected with lectin-C and jacalin-MI. Jacalin-M2, however, exhibited two closely associated precipitin arcs. The binding of these lectins with IgA was pronouncely inhibited in the presence of p-nitrophenyl-beta-D-galactopyranoside, 1-o-methyl-alpha-D-galactopyranoside, D-melibiose, N-acetyl-D-galactosamine and D-galactose. The data therefore provide evidence on the differential specificity of IgA binding lectins isolated from seeds of similar as well as distinct Artocarpus species.

Author	Hossain, T., S. Bilkis, S. K. Roy and S. Hadiuzzaman
Title	Shoot differentiation from callus-culture of jackfruit (Artocarpus heterophyllus La
Year	1991
Source title	Bangladesh Journal of Botany
Reference	20(2): 239-241

Abstract

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Author Kavathekar KY; Panda PK; Sastry TCS; Gupta R; Rethinam P; Edison S; Pareek

Title Trees for life

Year 1991

Source title India Farming

Reference 41(8): 1-70

Abstract

The second of 2 special issues, containing 12 papers on various aspects of trees, with emphasis on their diverse uses: (1) Forests as a source of timbers - information on 10 species/genera (Acacia catechu, Albizia lebbek, Cedrus deodara, Dalbergia sissoo, Pterocarpus marsupium, Santalum album, Shorea robusta, Tectona grandis, Bambusa and Dendrocalamus); (2) Trees in Indian medicine; (3) Trees with a spicy twang - information on 11 species (Syzygium aromaticum, Myristica fragrans, Cinnamomum spp., Garcinia indica, Pimenta dioica, Murraya koenigii, Tamarindus indica, Illicium spp., including I. verum, Ferula assa-foetida, Pimenta racemosa and Punica granatum), and discussion on constraints to production; (4) Fruit trees for arid and semiarid lands - suitable species are listed and discussed, including nutritional aspects/data, propagation and planting methods, water harvesting and moisture conservation, and fertilizing; (5) Trees for fighting malnutrition - a brief discussion of the nutritive value of tree fruits with data for 19 species (Prunus amygdalus [P. dulcis], Emblica officinalis [Phyllanthus emblica], Malus pumila, Prunus armeniaca, Persea americana, Aegle marmelos, Musa sp., Ziziphus mauritiana, Artocarpus altilis, Anacardium occidentale, Annona squamosa, Phoenix dactylifera, Vitis vinifera, Psidium guajava, Artocarpus heterophyllus, Mangifera indica, Carica papaya, Ananas comosus and Juglans regia); (6) Under-utilized trees for food: promise and potentials - data on underutilized trees in 5 categories (bamboos, trees for vegetable and table purposes, fruit trees, edible oil-yielding trees and exotics); (7) Trees for agroforestry; (8) Trees yielding gums and resins - data on gums used for international trade are listed, and some important gums further discussed (gum arabic from Acacia senegal; tragacanth gum from Astragalus spp.; karaya gum from Sterculia urens; frankincense from Boswellia carterii [B. sacra]; myrrh from Commiphora molmol in Yemen and Somalia or from C. whitii (C. mukul) in India; rosin from Pinus spp.; dammars from various dipterocarp species; copals from African Leguminosae, e.g. Copaifera spp. and Trachylobium verrucosum [Hymenaea verrucosa]; and elemi from species of Burseraceae, e.g. Canarium and Amyris); (9) Tree-based land use for utilizing salt-affected soils - the distribution and characteristics of salt affected soils in India and promising tree species (and grasses) for use on them are discussed, demonstrating the ameliorative effects of such trees on soil properties; (10) Trees for fodder - data on suitable species for arid and semiarid regions, the Indo-Gangetic Plains, the Central and Coastal Zones, the North-eastern Region and the Subtemperate zone, showing periods of fodder availability, livestock preferences and nutritive value for various species suitable for tropical regions; (11) Trees for timber - wood properties required and suitable species for use are discussed for various wood products and constructions; and (12) Plants for life - the use of different plant (including tree) parts for food.

Other species included: Boswellia sacra, Commiphora mukul, Illicium verum, Prunus dulcis, Acacia catechu, Cedrus deodara, Dalbergia sissoo, Pterocarpus marsupium, Santalum album, Shorea robusta, Tectona grandis, Bambusa, Dendrocalamus, Myristica fragrans, Cinnamomum, Illicium, Pimenta racemosa, Punica granatum, Phyllanthus emblica, Prunus armeniaca, Persea americana, Aegle marmelos, Artocarpus altilis, Anacardium occidentale, Phoenix dactylifera, Psidium guajava, Mangifera indica, Carica papaya, Juglans regia, Acacia senegal, Astragalus, Sterculia urens, Pinus,

Copaifera, Canarium, Amyris, Lamiales.

Author Kuizenga, A., N. J. Vanhaeringen and A. Kijlstra

Title Identification of lectin binding-proteins in human tears

Year 1991

Source title Investigative Ophthalmology and Visual Science

Reference 32(13): 3277-3284

Abstract

The identity of glycoproteins in stimulated normal human tears was investigated by sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) of tears onto minigels, blotting, and subsequent incubation with different biotinylated lectins (concanavalin A [Con A], peanut agglutinin [PNA], glycine max agglutinin [SBA], Phaseolus vulgaris agglutinin, wheat germ agglutinin [WGA, native form], Artocarpus integrifolia agglutinin [Jacalin], and Pisum sativum agglutinin). Control proteins included purified secretory immunoglobulin A (sIgA) from human colostrum, human milk lactoferrin, and chicken-egg lysozyme. All samples were prepared in a denaturing (SDS) buffer under nonreducing and reducing conditions. The sIgA in tears and IgA (alpha) heavy chain fragments (reduced sample) were identified with most of the lectins tested. A particular high molecular weight (> 200 kD) protein fraction in tears that just entered the separation gel on SDS-PAGE was detected with WGA and Jacalin. This fraction stain poorly with silver. Tear lactoferrin was identified with all lectins used, although binding was low with SBA. Purified milk lactoferrin showed a poor reaction with Jacalin, but a protein in tears of similar mobility bound this lectin (nonreduced samples). Under both nonreducing and reducing conditions, tear-specific prealbumin in tears did not bind any of the lectins tested. Tear lysozyme only reacted with lectin after reduction. The techniques described may provide additional valuable information in addition to commonly used methods for tear protein analysis and further knowledge concerning the role of glycoproteins on the ocular surface.

Author Lin, C. N. and W. L. Shieh

Title Prenylflavonoids and a pyranodihydrobenzoxanthone from Artocarpus communis

Year 1991

Source title Phytochemistry

Reference 30(5): 1669-1671

Abstract

From the root bark of Artocarpus communis, two new prenylflavonoids, cycloartomunin and dihydrocycloartomunin, and a new pyranodihydrobenzoxanthone, cycloartomunoxanthone, were isolated and characterized.

Author Roy, S. K. and S. Hadiuzzaman

Title Micropropagation of 2 species of Artocarpus through in vitro culture

Year 1991

Source title Bangladesh Journal of Botany

Reference 20(1): 27-32

Abstract

A method for the micropropagation of Artocarpus chaplasha and A. heterophyllus was evolved using in vitro culture technique. Shoot tip and axillary bud were used as explants. A. chaplasha produced multiple shoots in MS + 0.05 mg 1(-1) NAA + 1.5 mg 1(-1) BA while A. heterophyllus responded to MS + 0.05 mg 1(-1) NAA + 1.0 mg 1(-1) BA. The regenerated plantlets of A. chaplasha induced maximum number of healthy roots in 1/2 MS + 0.05 mg 1(-1) Kn + 1.0 mg 1(-1) IBA while in A. heterophyllus it was 1/2 MS + 0.05 mg 1(-1) Kn + 1.5 mg 1(-1) IBA. About 80% plantlets survived when transplanted to soil.

Author Santos, I. K. F. D., J. O. Mengel, M. M. Bunnmoreno and A. Camposneto

Title Activation of t-cells and b-cells by a crude extract of Artocarpus integrifolia is me

Year 1991

Source title Journal of Immunological Methods

Reference 140(2): 197-203

Abstract

The biological activities previously described for a crude extract derived from seeds of Artocarpus integrifolia (jack fruit) are shown in the present work to be assigned to two distinct fractions present in this extract. One fraction is the D-galactose binding lectin, jacalin, obtained by affinity purification on a D-galactose Sepharose column. The other fraction is a D-mannose-binding protein which we propose to call 'Artocarpin'. As is well documented, jacalin binds to human IgA1 and is a useful tool for the purification of this immunoglobulin. We show here that the remaining biological activities consisting of the proliferative response of mouse spleen cells and human peripheral blood mononuclear cells and polyclonal activation of human and mouse B cells for the secretion of immunoglobulin are mediated by artocarpin. Artocarpin is unique in its capacity to induce polyclonal activation of B cells in the absence of proliferation. BALB/c nu/nu spleen cells failed to proliferate which indicates that this lectin is a T cell-dependent B cell polyclonal activator.

Author Saw, L. G., J. V. Lafrankie, K. M. Kochummen and S. K. Yap

Title Fruit-trees in a Malaysian rain-forest

Year 1991

Source title Economic Botany

Reference 45(1): 120-136

Abstract

An inventory was made of 50 ha of primary lowland rain forest in Peninsular Malaysia, in which ca. 340,000 trees 1 cm dbh or larger were measured and identified to species. Out of a total plot tree flora of 820 species, 76 species are known to bear edible fruit. Especially diverse were the wild species of mango (Mangifera, Anacardiaceae, 12 spp.), mangosteen (Garcinia, Clusiaceae, 13 spp.), breadfruit (Artocarpus, Moraceae, 10 spp.) and rambutan (Nephelium, Sapindaceae, 5 spp.). Median population size for all species of fruit trees was 3.0 trees per ha and 0.2 adult trees per ha. Direct economic value of wild fruit trees was small; only one species has been very much collected and sold, Parkia speciosa (Fabaceae), amounting to less than US$20 per ha per year. The potential value of the species as genetic resources is very large: 24 species are cultivated, 38 edible species are congeneric with cultivated crops and at least 10 other species bear inedible fruit but are related to cultivated crops. We conclude that the Peninsular Malaysian rain forest is exceedingly rich in wild fruit trees, that these normally live at low densities, and that their principal economic value is as genetic resources.

Author Serudin, H. J. D. S. and H. J. Tinggal

Title Tarap (Artocarpus odoratissimus): Potential tropical fruit for food product opport

Year 1991

Source title Frontier in Tropical Fruit Research, Pattaya City; Thailand

Reference Ishs, 106-111 pp

Abstract

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Author Swamy, M. J., D. Gupta, S. K. Mahanta and A. Surolia

Title Further characterization of the saccharide specificity of peanut (Arachis hypogaea

Year 1991

Source title Carbohydrate Research

Reference 213(Jun): 59-67

Abstract

2-Dansylamino-2-deoxy-D-galactose (Ga1NDns) has been shown to bind to peanut (Arachis hypogaea) agglutinin (PNA) in a saccharide-specific manner. This binding was accompanied by a five-fold increase in the fluorescence of Ga1NDns. The interaction was characterized by an association constant of 0.15 mm at 15-degrees and DELTA-H and DELTA-S values of -57.04 kJ.mol-1 and -118.1 J.mol-1.K-1, respectively. Binding of a variety of other mono-, di- and oligo-saccharides to PNA, studied by monitoring their ability to dissociate the PNA-Ga1NDns complex, revealed that PNA interacts with several T-antigen-related structures, such as beta-D-Galp-(1 --> 3)-D-GalNAc, beta-D-Galp-(1 --> 3)-alpha-D-GalpNAcOMe, and beta-D-Galp-(1 --> 3)-alpha-D-GalpNAc-(1 --> 3)-Ser, as well as the asialo-G(M1) tetrasaccharide, with comparable affinity, thus showing that this lectin does not discriminate between saccharides in which the penultimate sugar of the beta-D-Galp-(1 --> 3)-D-GalNAc unit is the alpha or beta-anomer, in contrast to jacalin (Artocarpus integrifolia agglutinin), another anti T-lectin which preferentially binds to beta-D-Galp-(1 --> 3)-alpha-D-GalNAc and does not recognize beta-D-Galp-(1 --> 3)-beta-D-GalNAc or the related asialo-G(M1) oligosaccharide. These studies also indicated that, in the extended combining region of PNA which accommodates a disaccharide, the primary subsite (subsite A) is highly specific for D-galactose, whereas the secondary subsite (subsite B) is less specific and can accommodate various structures, such as D-galactose, 2-acetamido-2-deoxy-D-galactose, D-glucose, and 2-acetamido-2-deoxy-D-glucose.

Author Wu, A. M. and S. Sugii

Title Coding and classification of d-galactose, n-acetyl-d-galactosamine, and beta-d-gal

Year 1991

Source title Carbohydrate Research

Reference 213(Jun): 127-143

Abstract

Grouping of lectin-binding properties, based on determinant structure rather than monosaccharide-inhibition pattern, should facilitate the selection of lectins as structural probes for glycans, as well as for the interpretation of the distribution and the properties of the carbohydrate chains on the cell surface. Based on the binding specificities studied with glycan by precipitin-inhibition, competitive-binding, and hemagglutinin-inhibition assays, twenty D-galactose-or N-acetyl-D-galactosamine-(or both)-specific lectins have been divided into six classes according to their specificity for a disaccharide unit, as all or part of the determinants, and the alpha-D-GalpNAc-(1 --> 3)-Ser(Thr) unit of the glycopeptide chain. A scheme of classification is shown as follows: (a) F-specific lectins [alpha-D-GalpNAc-(1 --> 3)-D-GalNAc, Forssman specific disaccharide]: Dolichos biflorus (DBL), Helix pomatia (HPL), hog peanut (ABL, Amphicarpaea bracteata), and Wistaria floribunda (WFL) lectins. (b) A-specific lectins [alpha-D-GalpNAc-(1 --> 3)-D-Gal blood group A-specific disaccharide]: Griffonia (Bandeiraea) simplicifolia-A4 (GSI-A4), lima bean (LBL), soy bean (SBL), Vicia villosa (VVL), Wistaria floribunda (WFL), Dolichos biflorus (DBL), and Helix pomatia (HPL) lectins. (c) Tn-specific lectins [alpha-D-GalpNAc-(1 --> 3)-Ser(Thr) of the protein core]: Vicia villosa B4 (VVL-B4), Salvia sclarea (SSL), Maclura pomifera (MPL), Bauhinia purpurea alba (BPL), HPL, and WFL, lectins. (d) T-specific lectins [beta-D-Galp-(1 --> 3)-D-GalNAc, the mucin-type sugar sequences on human erythrocyte membrane and T antigen, or the terminal, nonreducing disaccharide end-groups of the gangliosides]: Peanut (PNA), Bauhinia purpurea alba (BPL), Maclura pomifera (MPL), Sophora japonica (SJL), Artocarpus integrifolia (Jacalin, AIL), and Artocarpus lakoocha (Artocarpin) lectins. (e) Type I and II specific lectins [beta-D-Galp-(1 --> 3 or 4)-D-GlCNAc, the disaccharide residues at the nonreducing end of the carbohydrate chains derived from either N- or O-glycans]: Ricinus communis agglutinin (RCA1), Datura stramonium (TAL, Thorn apple), Erythrina cristagalli (ECL,Coral tree), and Geodia cydonium (GCL), lectins. (f) B-specific lectin [alpha-D-Galp-(1 --> 3)-beta-D-Galp, human blood group B-specific disaccharide]: Griffonia (Bandeiraea) simplicifolia B4 (GSI-B4) lectin. Many other GalNAc- or Gal-(or both)-specific lectins that can be used as tools are also described.

Author Young, N. M., R. A. Z. Johnston and D. C. Watson

Title The amino-acid-sequences of jacalin and the Maclura pomifera agglutinin

Year 1991

Source title Febs Letters

Reference 282(2): 382-384

Abstract

Amino acid sequences for the alpha-chains of the Moraceae lectins, jacalin and Maclura pomifera agglutinin, were determined by protein sequencing. Both are 133 residues long and contain several genetically variant positions; the overall homology is 85%. A possible site for the known glycopeptide of jacalin was located. The alpha-chains have a conserved tryptophan residue that may be part of the binding-site.

Author Florence, E. J. M. and J. K. Sharma

Title Botryodiplodia-theobromae associated with blue staining in commercially importa

Year 1990

Source title Material Und Organismen

Reference 25(3): 193-199

Abstract

A periodic survey was conducted in some of the wood based industries of Kerala to investigate the occurrence of sapstain and microorganisms associated with it. All the timber species surveyed were susceptible to staining by Botryodiplodia theobromae. The frequency of isolation of B. theobromae was highest in Hevea brasiliensis, Anacardium occidentale, Artocarpus spp. and Ailanthus triphysa. Laboratory studies with Bacillus subtilis, isolated from the surface of rubber wood reveal that this bacterium has potential as a biocontrol agent for sapstain fungus, B. theobromae.

Author Fujimoto, Y., X. X. Zhang, M. Kirisawa, J. Uzawa and M. Sumatra

Title New flavones from Artocarpus communis Forst

Year 1990

Source title Chemical and Pharmaceutical Bulletin

Reference 38(6): 1787-1789

Abstract

Author Hano, Y., M. Aida and T. Nomura

Title Constituents of the moraceae plants .4. 2 new natural diels-alder-type adducts fro

Year 1990

Source title Journal of Natural Products

Reference 53(2): 391-395

Abstract

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Author Hano, Y., R. Inami and T. Nomura

Title Constituents of the moraceae plants .12. Components of the bark of Artocarpus rig

Year 1990

Source title Heterocycles

Reference 31(12): 2173-2179

Abstract

From the bark of Artocarpus rigida Bl. (Moraceae), collected in Indonesia, two new isoprenylated flavones, artonins G (1) and H (2) were isolated along with three known isoprenylated flavones, artonin E (3), cycloartobiloxanthone (4), and artobiloxanthone (5). The structures of artonins G and H were shown to be 1 and 2, respectively, on the basis of spectroscopic data.

Author Hano, Y., Y. Yamagami, M. Kobayashi, R. Isohata and T. Nomura

Title Constituents of the moraceae plants .8. Artonin-e and artonin-f, 2 new prenylflavo

Year 1990

Source title Heterocycles

Reference 31(5): 877-882

Abstract

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Author Hortin, G. L.

Title Isolation of glycopeptides containing o-linked oligosaccharides by lectin affinity-c

Year 1990

Source title Analytical Biochemistry

Reference 191(2): 262-267

Abstract

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Author Hussain, M. D., R. G. Micetich, A. Shysh and M. R. Suresh

Title Studies on the invivo and invitro binding characteristics of breadfruit (Artocarpus

Year 1990

Source title Biochemical Archives

Reference 6(2): 159-168

Abstract

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Author Katiyar, S. K., K. Sharma, N. Kumar and A. K. Bhatia

Title Composition of some unconventional Himalayan wild fruits

Year 1990

Source title Journal of Food Science and Technology (Mysore)

Reference 27(5): 309-310

Abstract

Fifteen species of unconventional wild fruits are identified and collected for documentation and chemical examination during survey of food habits of tribals residing in North-Western Himalayan range. Next to water component, the fruits are rich in sugars (9.95 - 35.42%) and mineral matter (0.5 - 4.7%). Potassium, calcium, iron and phosphorus contents varied from 34 to 998, 51 to 671, 2 to 160 and 3 to 201 mg/100g fruit pulp, respectively. Fruits of Rosa macrophylla (769 mg/100g), Rosa webbiana (751 mg/100g) and Hippophae rhamnoides (509 mg/100g) are rich source of vitamin C content. Artocarpus lakoocha fruits are used in making chutney and as pickle while sun-dried Diospyros lotus fruits are used throughout the year by local hill communities.

Author Kelaskar, A. J., A. G. Desai and M. J. Salvi

Title Effect of container size and insitu budding on success and growth of patch bud gra

Year 1990

Source title Indian Journal of Agricultural Sciences

Reference 60(4): 265-267

Abstract

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Author Mahanta, S. K., M. V. K. Sastry and A. Surolia

Title Topography of the combining region of a thomsen-friedenreich-antigen-specific le

Year 1990

Source title Biochemical Journal

Reference 265(3): 831-840

Abstract

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Author Nair, A. G. R., V. K. Vijayan and C. V. Sethumadhavan

Title Confirmation of structure of cycloartocarpin from Artocarpus hirsutus

Year 1990

Source title Indian Journal of Chemistry Section B-Organic Chemistry Including Medicinal C

Reference 29(9): 881-882

Abstract

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Author Robinson RD; Williams LAD; Lindo JF; Terry SI; Mansingh A

Title Inactivation of Strongyloides stercoralis filariform larvae invitro by 6 jamaican pl

Year 1990

Source title West Indian Medical Journal

Reference 39(4): 213-217

Abstract

In vitro bioassay of (a) aqueous methanol extracts (AME) of the green leaves of mimosa (Mimosa pudica), love weed (Cuscuta americana), vervine (Stachytarpheta jamaicensis), chicken weed (Salvia serotina) and breadfruit (Artocarpus altilis); (b) methanol-water fraction (MWF) of breadfruit leaves, and (c) commercially available drugs albendazole, thiabendazole and levamisole were assayed for nematode inactivating potential, using filariform larvae of Strongyloides stercoralis. Test larvae were obtained from a 10-day-old charcoal coproculture. Bioassays were conducted in Locke's solution, using 100 larvae in each of three replicates. Inactivation was recorded microscopically at 1, 3, 6 and 12 hours, then every 24 hours up to 5 days' incubation. It50 (time for inactivation of 50% of larvae) values read: levamisole and mimosa extract < 1 hour; love weed extract, approximately 2 hours; breadfruit (MWF), 9.5 hours; chicken weed, 20 hours; albendazole, 35 hours; breadfruit (AME), 49 hours; thiabendazole, 74 hours and vervine extract, 81.5 hours. It95 values followed a similar trend, and were approximately double the It50 measures. A potential role for locally available natural products in the treatment of strongyloidiasis is highlighted.

Author Roy, S. K., S. L. Rahman and R. Majumdar

Title Invitro-propagation of jackfruit (Artocarpus heterophyllus Lam.)

Year 1990

Source title Journal of Horticultural Science

Reference 65(3): 355-358

Abstract

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