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Author A. Kashi, S. Hosseinzadeh, M. Babalar and H. Lessani
Title Effect of black polyethylene mulch and calcium nitrate application on growth, yield
Year 2004
Source title Journal of Science and Technology of Agriculture and Natural Resources
Reference 7(4): 1-10

Abstract

Watermelon (*Citrullus Lanatus*) cv. Charleston Gray, one of the most important cultivars grown in Iran, has some good quantitative and qualitative characteristics but unfortunately is sensitive to blossom-end rot (BER). To solve this problem, an experiment was conducted at the Research Station and Laboratories of Department of Horticulture, University of Tehran in Iran, during 1997-98. Black polyethylene mulch was used and calcium nitrate was foliar sprayed at 0, 4, and 6 g/litre. Results indicated that mulch could increase yield by 85% over two years due to weed growth suppression and conservation of soil moisture for a longer time. Foliage fresh weight, number and average weight of fruits per plant and precocity were also significantly affected by black polyethylene mulch. Furthermore, mulch reduced the number and weight of fruits affected by BER by ~13.0 and 12.5% (average of two years), respectively. Calcium nitrate addition during both years had no significant effect on the measured fruit characteristics nor on BER.

Author D. C. Cabelof, J. J. Raffoul, J. Nakamura, D. Kapoor, H. Abdalla and A. R. Heyda
Title Imbalanced base excision repair in response to folate deficiency is accelerated by
Year 2004
Source title Journal of Biological Chemistry
Reference 279(35): 36504-36513

Abstract

The mechanism by which folate deficiency influences carcinogenesis is not well established, but a phenotype of DNA strand breaks, mutations, and chromosomal instability suggests an inability to repair DNA damage. To elucidate the mechanism by which folate deficiency influences carcinogenicity, we have analyzed the effect of folate deficiency on base excision repair (BER), the pathway responsible for repairing uracil in DNA. We observe an up-regulation in initiation of BER in liver of the folate-deficient mice, as evidenced by an increase in uracil DNA glycosylase protein (30%, $p < 0.01$) and activity (31%, $p < 0.05$). However, no up-regulation in either BER or its rate-determining enzyme, DNA polymerase beta (beta-pol) is observed in response to folate deficiency. Accordingly, an accumulation of repair intermediates in the form of DNA single strand breaks (37% increase, $p < 0.03$) is observed. These data indicate that folate deficiency alters the balance and coordination of BER by stimulating initiation without subsequently stimulating the completion of repair, resulting in a functional BER deficiency. In directly establishing that the inability to induce beta-pol and mount a BER response when folate is deficient is causative in the accumulation of toxic repair intermediates, beta-pol-haploin-sufficient mice subjected to folate deficiency displayed additional increases in DNA single strand breaks (52% increase, $p < 0.05$) as well as accumulation in aldehydic DNA lesions (38% increase, $p < 0.01$). Since young beta-pol-haploinsufficient mice do not spontaneously exhibit increased levels of these repair intermediates, these data demonstrate that folate deficiency and beta-pol haploinsufficiency interact to increase the accumulation of DNA damage. In addition to establishing a direct role for beta-pol in the phenotype expressed by folate deficiency, these data are also consistent with the concept that repair of uracil and abasic sites is more efficient than repair of oxidized bases.

Author D. K. Singh, S. Barun and S. K. Sen
Title Role of pre-sowing seed treatment with different chemicals and seed sizes on the
Year 2004
Source title Environment and Ecology
Reference 22(2): 439-442

Abstract

The effects of seed size (small, medium and large) and pre-sowing treatment (soaking in H₂SO₄ for 10 minutes then washing with water; soaking in H₂SO₄ for 10 minutes then in 1% thiourea for 12 h; mechanical cracking of seeds; chilling for 24 h in the refrigerator; and soaking in water for 24 h, control) on the seed germination and seedling growth of *Z. mauritiana* were studied in Kalyani, West Bengal, India, during May-September 1996 and 1997. The greatest seed germination was obtained with the use of medium seeds (50.93%) and treatment with H₂SO₄ for 10 minutes (54.22%). The mechanical cracking of seeds resulted in the lowest number of days to germination (23.66 days). The tallest seedlings were obtained with medium seeds (25.26 cm) and water-soaked seeds (26.33 cm). Water-soaked seeds and large seeds gave the greatest stem diameters (0.54 and 0.51 cm, respectively).

Author G. Lal and M. S. Fageria
Title Effect of different packages during transportation and storage of ber fruits (*Ziziph*
Year 2004
Source title Indian Journal of Plant Physiology
Reference 9(2): 199-202

Abstract

The physiological loss in weight (PLW) and spoilage increased gradually during transportation and storage in all the packages (bamboo baskets, gunny bags lined with polyethylene, gunny bags, wooden boxes, corrugated fibre board boxes) used for *Ziziphus mauritiana* fruits in studies conducted during 1997-99. Fruit acidity, ascorbic acid and organoleptic acceptance decreased. TSS (total soluble solids) increased during transportation and up to 3 days of storage and then decreased on subsequent days of storage. Minimum PLW was recorded in the fruits packed in gunny bags lined with polythene. However, the performance of corrugated fiberboard (CFB) boxed was the best for transportation and storage of ber fruits. The fruits packed in CFB boxes exhibited maximum total soluble solids content, acidity, ascorbic acid content and with minimum spoilage just after transportation and at the end of storage period. These fruits were acceptable up to day 6 of storage and with the highest (6.15) organoleptic score. The fruits packed in other packages were acceptable only up to 3 - 4 days.

Author G. Li, W. Zhang, F. Benoit and N. Ceustermans
Title Effects of environment factors on the growth and incidence of blossom-end rot in
Year 2004
Source title Acta Horticulturae
Reference 633, 381-389

Abstract

Blossom-end rot (BER), a physical disorder common in tomato and pepper fruits, is related to poor calcium translocation in the fruits. To investigate the effects of environment factors on the incidence of BER in soilless culture of *Capsicum frutescens* var. *grossum*, a series of experiments were carried out for 3 years (1998 to 2000). The comprehensive treatments included air humidity enrichment to 60% or control, slab cooling to 17 degrees C or not, slab moisture controlled by timer or set at 50 and 60%. The results showed that air humidity enrichment buffered the acute change of the air relative humidity and the air temperature in the greenhouse, especially during a hot day. The number of xylem bundles in the fruit parts was significantly increased under the humid conditions, and a greater increase was found in the distal part than that in the basal part, with 14.6 and 11.4% increase compared to the control plants, respectively. The Ca levels were significantly higher in the fruits developed under the humid conditions, with 19.9% more in the basal part and 16.6% more in the distal part. However, the K content was quite stable. Slab cooling resulted in a higher oxygen content in the root environment. Air humidity enrichment, slab cooling as well as slab moisture of 50% significantly lowered the incidence of BER. There was cumulative effect of these treatments on the occurrence of BER in soilless sweet pepper, but no significant differences of the harvested fruit number and the yield were observed among the different treatments.

Author I. Syed and Y. N. Reddy
Title Amelioration of soil physico-chemical properties in perennial ber-based cropping
Year 2004
Source title Crop Research (Hisar)
Reference 27(2/3): 214-218

Abstract

Amelioration of soil physico-chemical properties in ber (*Ziziphus mauritiana*)-based system was studied by simultaneous planting of ber and aromatic grasses (*Cymbopogon martinii* and *C. flexuosus*) as intercrops and/or sole crops in Hyderabad, Andhra Pradesh, India. Changes in soil reaction (pH), electrical conductivity (EC), bulk density, organic matter content and available NPK were studied in intercropped, sole cropped and fallow plots at the beginning and end of the study (1989-93). Reduction in soil pH, EC and bulk density values was observed under intercropping treatments compared with sole cropping, while no change was recorded in fallow plots over a period of 4 years. The increase in organic matter content and soil available N and P under intercropping is attributed to tree leaf litter addition and its quick decomposition after annual pruning every year and root turn over of associated ber trees.

Author J. A. Magner, G. A. Payne and L. J. Steffen
Title Drainage effects on stream nitrate-N and hydrology in south-central Minnesota (U
Year 2004
Source title Environmental Monitoring and Assessment
Reference 91(1/3): 183-198

Abstract

Excessive nitrate-N in south-central Minnesota ditches and streams is related to land-use change, and may be contributing to the development of the zone of hypoxia in the Gulf of Mexico. Intensive land-use (agricultural management) has progressively increased as subsurface drainage has improved crop productivity over the past 25 years. We have examined water at varying scales for delta 18O and, nitrate-N concentrations. Additionally, analysis of annual peak flows, and channel geomorphic features provided a measure of hydrologic change. Laboratory and field results indicate that agricultural drainage has influenced riverine source waters, concentrations of nitrate-N, channel dimensions and hydrology in the Blue Earth River (BER) Basin. At the mouth of the BER shallow ground water comprises the largest source water component. The highest nitrate-N concentrations in the BER and tributaries typically occurred in May and June and ranged from 7-34 mg L⁻¹. Peak flows for the 1.01-2-yr recurrence intervals increased by 20-to-206% over the past 25 years. Geomorphic data suggest that small channels (ditches) were entrenched by design, whereas, natural channels incised. Increased frequent peak flows in the BER have created laterally confined channels that are disconnected from an accessible riparian corridor. Frequent access to a functioning riparian zone is important for denitrification.

Author J. A. Stuart, B. Karahall, B. A. Hogue, N. C. Souza-Pinto and V. A. Bohr
Title Mitochondrial and nuclear DNA base excision repair are affected differently by ca
Year 2004
Source title FASEB Journal
Reference 18(3): 595-597

Abstract

The hypothesis that calorie restriction initiates a programme of enhanced mtDNA repair, allowing maintenance of mitochondrial genomic integrity and function throughout the extended life span of calorie restricted (CR) mice, was studied. The ability of CR and pair-fed (PF) mouse mitochondria to repair damaged DNA was assessed by measuring base excision repair (BER) activity in mitochondrial extracts prepared from liver, brain and kidney mitochondria. Mice were maintained on CR (60% caloric intake) and PF (100% caloric intake) diets for 14 months, beginning at 8 weeks of age. Results showed that calorie restriction lowers DNA repair activity in the brain and kidney, but not in liver mitochondria. Caloric restriction was also found to induce subtle increases in uracil DNA glycosylase; however, decreases in AP endonuclease and polymerase- gamma activities in mitochondria were also observed. CR was also found to increase nuclear BER activity. These data suggest that, at least in postmitotic cells (brain and kidney), mitochondrial BER activity is regulated by mitochondrial reactive oxygen species production. This effect of CR is opposite of that observed in mitotic cells (liver) and of the effect on nuclear DNA repair, indicating differential regulation of mtDNA repair in mitotic and postmitotic cells and in mitochondrial and nuclear compartments.

Author J. C. Tu, A. Liptay, C. S. Tan, C. F. Drury and D. Reynolds
Title Effect of drip irrigation and drip fertigation on yield of processing tomato in Sout
Year 2004
Source title Acta Horticulturae
Reference 635, 195-200

Abstract

A study conducted from 1998 to 2001 at Harrow, Ontario, Canada revealed that drip irrigation and drip fertigation significantly increased tomato yield compared with the untreated control. The percentage of tomato fruits with blossom-end rot (BER) was significantly reduced to negligible levels in drip irrigated and drip fertigated treatments. Drip fertigation exerted significant yield advantage over drip irrigation only in the year when rainfall was below normal during the periods of flowering, fruit set and fruit growth, as experienced in 2001. There were significant interactions between BER and rainfall; BER incidence decreased with higher rainfall. Drip irrigation controlled B E R t o n e a r l y n e g l i g i b l e l e v e l s .

Author J. J. Munoz-Ramos, M. Guzman and J. Z. Castellanos
Title Sodic salinity on vegetative and reproductive growth of pepper. [Spanish]
Year 2004
Source title Terra
Reference 22(2): 187-196

Abstract

This study was carried out during the first trimester of 2001, under the climatic conditions of the Mediterranean coast in Spain. Pepper (*Capsicum annuum* cv. California) plants were grown in soilless culture. An automatically timed fertigation system was used. Perlite B12 was used as substrate, contained in a channel of stiff black polyethylene. The objective of the study was to determine the effect of salinity ($EC=9$ dS m^{-1}) on growth and early plant development. Three sources of salt were used: NaCl (to simulate saline intrusion in the littorals), Na₂SO₄ (a common salt in underground water in arid and semi-arid regions), and a high salinity treatment maintaining the ionic balance of the concentrated nutrient solution (SNc), compared with the normal nutrient solution (SNn). At the beginning of the generative stage and during the development of the first fruit, two samplings of biomass were carried out, separating the roots, shoots, leaves, and fruits. Up to the beginning of the generative stage, salinity did not significantly affect the number of leaves ($P<0.05$). On the other hand, leaf area decreased significantly by 23 and 43% in the treatments with Na (SO₄ and Cl) and SNc, respectively. During the stage of fruit development, the salinity significantly reduced total fresh biomass by 46, 33, and 50% in the treatments NaCl, Na₂SO₄, and SNc, respectively, compared with the control treatment. The weight of fresh fruit was reduced by 43 and 55% for the treatments with Na (SO₄ and Cl) and SNc. At 23 days after the beginning of flowering, the presence of blossom end rot (BER) in the fruits was observed. Salinity contributed to the increase in the incidence of this physiological disorder ($P<0.07$). BER increased by 64% in presence of NaCl and 186% in the treatment with Na₂SO₄, compared with SN treatments, where the increase was 22%.

Author J. Pena-Diaz, M. Akbari, O. Sundheim, M. E. Farez-Vidal, S. Andersen, R. Sneve,
Title Trypanosoma cruzi contains a single detectable uracil-DNA glycosylase and repair
Year 2004
Source title Journal of Molecular Biology
Reference 342(3): 787-799

Abstract

Enzymes involved in genomic maintenance of human parasites are attractive targets for parasite-specific drugs. The parasitic protozoan *Trypanosoma cruzi* contains at least two enzymes involved in the protection against potentially mutagenic uracil, a deoxyuridine triphosphate nucleotidohydrolase (dUTPase) and a uracil-DNA glycosylase belonging to the highly conserved UNG-family. Uracil-DNA glycosylase activities excise uracil from DNA and initiate a multistep base-excision repair (BER) pathway to restore the correct nucleotide sequence. Here we report the biochemical characterisation of *T. cruzi* UNG (TcUNG) and its contribution to the total uracil repair activity in *T. cruzi*. TcUNG is shown to be the major uracil-DNA glycosylase in *T. cruzi*. The purified recombinant TcUNG exhibits substrate preference for removal of uracil in the order ssU > U:G > U:A, and has no associated thymine-DNA glycosylase activity. *T. cruzi* apparently repairs U:G DNA substrate exclusively via short-patch BER, but the DNA polymerase involved surprisingly displays a vertebrate POL delta -like pattern of inhibition. Back-up UDG activities such as SMUG, TDG and MBD4 were not found, underlying the importance of the TcUNG enzyme in protection against uracil in DNA and as a potential target for drug therapy.

Author J. S. Bal, J. S. Randhawa and S. Jagjit
Title Studies on the rejuvenation of old ber trees of different varieties.
Year 2004
Source title Journal of Research, Punjab Agricultural University
Reference 41(2): 210-213

Abstract

An experiment was conducted in Ludhiana, Punjab, India, during May 1999 to study the effect of limb length on the growth and bearing of 30-year-old trees of ber [*Ziziphus mauritiana*] cultivars Wallaiti, Kaithli, Sanaur-2, Sanaur-4, Sanaur-5, Chhuhara and Nalagarh. The trees were headed back during the second fortnight of May with 2 levels of heading back, i.e. retention of 15 or 30 cm length of the main limbs. The first thinning of shoots was conducted during the fourth week of August by retaining 12-18 shoots. The second thinning of shoots was conducted during the second fortnight of September (before flowering) and an average of 8-12 shoots were retained. Data were recorded for vegetative characters (tree height and tree spread), fruit yield, fruit weight, fruit size and total soluble solids content. The results showed that the 30-year-old ber trees were rejuvenated by heading back during the second fortnight of May by retaining 30 cm length of the main limbs.

Author L. M. I. Webster, R. H. Thomas and G. P. McCormack
Title Molecular systematics of *Acarus siro* s. lat., a complex of stored food pests.
Year 2004
Source title Molecular Phylogenetics and Evolution
Reference 32(3): 817-822

Abstract

The astigmatid mite *Acarus siro* (Linnaeus 1758) is an important agricultural pest and environmental allergen. However, it is likely that many mites described in the literature as *A. siro*, collected from both outdoor and stored product habitats, may belong to one of its sibling species, *A. farris* [Ent. Ber. Amst. 2 (26) (1905) 20] or *A. immobilis* [Bull. Br. Mus. Nat. Hist. 11 (1964a) 413; *Acarologia*. 6 (Suppl) (1964) 101]. The three species are difficult to separate morphologically, gene exchange between some of them is possible and, although each species displays environmental preferences, they occur together in some environments. This raises a question about their separate species status. In a pilot study, we investigated whether genetic data supported the separate species status of these forms. Both nuclear (the second internal transcribed spacer region [ITS-2] of the ribosomal cistron) and mitochondrial (cytochrome oxidase subunit I, *mtcoxI* hereafter) loci were employed for this purpose. *Mtcox1* data does not conflict the differentiation into three separate species and while the ITS2 data were problematic for this group of mites it suggested that a congener, *Acarus gracilis* [Ann. Mag. Nat. Hist. 10 (1957) 753], is basal to the *A. siro* species complex.

Author M. D. Taylor and S. J. Locascio
Title Blossom-end rot: a calcium deficiency.
Year 2004
Source title Journal of Plant Nutrition
Reference 27(1): 123-139

Abstract

Blossom-end rot (BER) is a common physiological disorder that occurs on the fruit of tomato (*Lycopersicon esculentum*), pepper (*Capsicum annum*), aubergine (*Solanum melongena*), and watermelon (*Citrullus lanatus*). BER may occur in all the tomato-producing areas of the world and has been shown to create losses up to 50%. BER is related to many factors including high salinity; high magnesium (Mg), ammonium (NH₄), and/or potassium (K) concentration; inadequate xylem tissue development; accelerated growth rate; unfavourable moisture relationships (high, low, or fluctuating); low soluble soil calcium (Ca); high temperature; and high and low transpiration, but the underlying cause of this disorder is an inadequate amount of Ca in the blossom-end of the fruit. Although it is widely accepted that a local Ca deficiency plays an important role in the induction of BER, there are also some claims that Ca deficiency is not the cause of BER as a critical level of Ca for BER induction has not been found. To prevent BER from occurring, an understanding of Ca in the soil, uptake and translocation of Ca, and the factors affecting these processes, is necessary.

Author M. D. Taylor, S. J. Locascio and M. R. Allgood
Title Blossom-end rot incidence of tomato as affected by irrigation quantity, calcium so
Year 2004
Source title HortScience
Reference 39(5): 1110-1115

Abstract

Tomatoes cv. Equinox were grown during the 2001 and 2002 spring seasons using black polyethylene-mulch and drip irrigation in Arredondo fine sand in Florida, USA, to study the effect of water quantity, Ca source and reduced K on the incidence of blossom-end rot (BER), marketable fruit yield and fruit and leaf Ca concentration. Tensiometers were used to schedule irrigation in main plots when the soil matric potential reached 10 or 25 kPa. Subplot nutritional treatments were no added Ca, Ca(NO₃)₂, Ca thiosulfate, CaCl₂, CaSO₄, and K rate reduced by 50%. The total marketable yields were higher with Ca(NO₃)₂ or CaCl₂ compared to plants that received Ca thiosulfate and were higher from plants irrigated at 10 kPa than those irrigated at 25 kPa in 2001. The number and weight of BER affected fruits were lower with Ca(NO₃)₂ and reduced K than with no added Ca and CaSO₄. The leaf and fruit Ca concentrations were generally higher with Ca(NO₃)₂ compared to all other nutritional treatments. The leaf and fruit Ca concentrations were higher in plants irrigated at 10 kPa than at 25 kPa. The reduction of NH₄⁺-N, by the supply of N as NO₃⁻, and the addition of supplemental Ca reduced the incidence of BER, and increased the leaf and fruit Ca concentrations. In 2002, the marketable yields were higher with CaSO₄ than with CaCl₂ and reduced K. The weight and number of BER affected fruits were lower with irrigation at 10 kPa than at 25 kPa. The leaf and fruit Ca concentrations were higher or were similar in plants that received Ca(NO₃)₂ than with all other nutritional treatments. During 2002, rainfall was less and the temperature and daily evapotranspiration (ET) were higher than in 2001. In 2002, water at 3.28x10⁶ litre/ha was applied compared to 1.58x10⁶ litre/ha in 2001. With an average Ca concentration of 76 mg/litre in the irrigation water, more Ca was applied during higher ET in 2002. Due to the higher transpiration and temperature, water and Ca uptake were increased. During both seasons, the lowest Ca concentration was observed at the blossom end of the fruit and the highest Ca at the stem end of the fruit. Fruit Ca concentrations were lower and BER was 5 times higher in the lower ET, higher rainfall (lower irrigation) 2001 season compared to the higher ET, lower rainfall (higher irrigation) 2002 season. BER was a symptom of Ca deficiency and this deficiency was aggravated by high rainfall, low ET and the resulting reduced irrigation applied and reduced Ca uptake.

Author M. Mani and A. Krishnamoorthy
Title Role of predators in the control of horticultural crop pests of India
Year 2004
Source title Indian insect predators in biological control
Reference 297-327

Abstract

This paper discusses the role of predators in controlling the pests of horticultural crops in India. It provides a list of predators used for the biological control of pests of temperate fruits, tropical fruits (citrus, grapevine, guava, mango), arid zone fruits (pomegranate, ber [*Ziziphus mauritiana*], custard apple [*Annona reticulata*], litchi, phalsa, jackfruit, star gooseberry), vegetables (tomato, cabbage, cauliflower, aubergine, chilli, onion, chow-chow [*Sechium edule*]) and ornamental crops, and identifies future research prospects for the introduction of these predators in horticultural systems and their utilization in integrated pest management programmes.

Author P. K. Yadav and P. S. Rathore
Title Effect of foliar spray of thiourea and ferrous on the yield and quality of ber fruit (
Year 2004
Source title Progressive Agriculture
Reference 4(1): 85-86

Abstract

An experiment was conducted in Bikaner, Rajasthan, India, during 1998-99 to determine the effect of thiourea (0.1%) and ferrous sulfate (0.2%), alone or in combinations, foliar sprays on the yield and quality of ber (*Zizyphus mauritiana* [*Ziziphus mauritiana*] cv. Gola. The highest fruit length (2.84 cm), fruit breadth (2.97 cm), fruit weight (12.14 g), total soluble solids content (19.10%) and yield (34.476 kg/tree) were obtained with thiourea + ferrous sulfate treatment. In addition, thiourea + ferrous sulfate treatment significantly decreased specific gravity (0.81%) and acidity (0.12%).

Author S. J. Tabatabaei, P. J. Gregory and P. Hadley
Title The distribution of nutrients in the root zone affects the yield, quality and blossom
Year 2004
Source title Journal of Horticultural Science and Biotechnology
Reference 79(1): 158-163

Abstract

Tomato plants (*Lycopersicon esculentum* cv. DRK 2003 F1) were grown hydroponically in two experiments to determine the effects of nutrient concentration and distribution in the root zone on yield, quality and blossom end rot (BER). The plants were grown in rockwool with their root systems divided into two portions. Each portion was irrigated with nutrient solutions with either the same or different electrical conductivity (EC) ranging from 0 to 6 dS m⁻¹. In both experiments, fruit yields decreased as EC increased from moderate to high when solutions of equal concentration were applied to both portions of the root system. However, higher yields were obtained when a solution with high EC was applied to one portion of the root system and a solution of low EC to the other portion. For example, the fresh weight of mature fruits in the 6/6 treatment was only 20% that of the 3/3 treatment, but the 6/0 treatment had a yield that was higher by 40%. The reduction in yield in the high EC treatments was due to an increase in the number of fruits with BER and smaller fruit size. BER increased from 12 to 88% of total fruits as EC increased from 6/0 to 6/6 and fruit length decreased from 67 to 52 mm. Fruit quality (expressed as titratable acidity and soluble solids) increased as EC increased. In summary, high yields of high-quality tomatoes with minimum incidence of BER were obtained when one portion of the root system was supplied with a solution of high EC and the other portion with a solution of moderate or zero EC.

Author S. J. Tabatabaie, P. J. Gregory and P. Hadley
Title Uneven distribution of nutrients in the root zone affects the incidence of blossom
Year 2004
Source title Plant and Soil
Reference 258(1/2): 169-178

Abstract

Tomato plants (*Lycopersicon esculentum* Mill. var. DRK) were grown hydroponically to determine the effect of an uneven distribution of nutrients in the root zone on blossom end rot (BER) and Ca and K concentrations in the fruits. The plants were grown in rockwool with their root system divided into two portions. Each portion was irrigated with nutrient solutions with either the same or the different electrical conductivity (EC) in the range 0 to 6 dS m⁻¹. Solutions with high EC supplied to both sides of the root system significantly increased the incidence of BER. However, when only water or a solution of low EC was supplied to one portion, BER was reduced by 80%. Fruit yields were significantly higher ($P < 0.01$) for plants that received solutions of the uneven EC treatments (6/0 or 4.5/0 EC treatment). Plants supplied with solutions of uneven EC generally had higher leaf and fruit concentrations of Ca but lower concentrations of K than those supplied with solutions of high EC. There was no difference in Ca concentration at the distal end of young fruits of the uneven EC treatment but it was reduced in the high EC treatments. The concentration of K in the mature fruits of the uneven EC treatments was lower than that of the high EC treatments and higher or similar that of the 3/3 or 2.5/2.5 EC treatments (controls). A clear relationship was found between the incidence of BER and the exudation rate. High rate of xylem exudation was observed in the uneven EC treatments. Reduction of BER in the uneven EC treatments is most likely to be the effect of high exudation rate on Ca status in the young fruits. It was concluded that high EC of solution had positive effects on Ca concentration and incidence of BER provided that nutrient solution with low EC or water is supplied to the one portion of the root system.

Author S. K. Thind, K. Nirmaljit and J. K. Arora
Title Periodicity and epidemiology of ber powdery mildew in Punjab.
Year 2004
Source title Progressive Horticulture
Reference 36(1): 164-166

Abstract

An experiment was conducted in Abohar, Punjab, India, during September-February 1995/96 on ber [*Ziziphus mauritiana*] cv. Umran to study the seasonal occurrence and epidemiology of ber powdery mildew (*Microsphaera alphitoides* f.sp. *zizyphi*). Ber powdery mildew was first observed in September when the average minimum and maximum temperature was between 23.65 and 36.54 degrees C, relative humidity between 53.54 and 84.46% and rain 5.34 mm. Disease severity was highest (36.67%) in November with a mean temperature of 19.20 degrees C, mean relative humidity of 62.64% and 1.71 mm rain.

Author S. Mukherjee, R. Paliwal and S. Pareek
Title Effect of water regime, mulch and kaolin on growth and yield of ber (*Ziziphus ma*
Year 2004
Source title Journal of Horticultural Science and Biotechnology
Reference 79(6): 991-994

Abstract

An experiment was conducted using uniform 9 year-old plants of ber (*Ziziphus mauritiana* cv. Mundia) on loamy sand soil at the Horticultural Research Farm, Asalpur, Jobner, (Jaipur-Rajasthan), India, from June to March 1995-96 and 1996-97. The experiment was consisted of 24 treatment combinations of three water regimes (no irrigation, three irrigations each of 10- and 15-cm depth given at preflowering, fruit set and fruit development), four mulches (no mulch, black polyethylene, mustard straw or *Tephrosia purpurea*) and two kaolin treatments (no spray or two sprays of 6% kaolin at preflowering and fruit set). Increasing the water levels significantly increased growth and productivity of ber. Among the various mulches, black polythene (M1) resulted in maximum growth and productivity. In contrast, kaolin improved only the productivity. The treatment combination of 15-cm irrigation depth+black polythene+6% kaolin spray gave the highest fruit yield (13.1 t/ha).

Author S. Rajesh and K. K. Misra
Title Correlation studies in Ber (*Ziziphus mauritiana* Lamk).
Year 2004
Source title Scientific Horticulture
Reference 9(37-40)

Abstract

A study was undertaken to correlate the various growth, fruiting and fruit characters of ber (*Ziziphus mauritiana*) cultivars (Banarasi Pewandi, Chhuhara, Chinese, Dandan, Illaichi, Kala Gola, Kaithli, Narikeli, Nazuk, Noki, Rohtaki Gola, Sanaur 1, Sanaur 2, Sanaur 3, Sanaur 4, Sanaur 5, Sanaur 6, Selected Safeda Seo, Thornless, Umran, Wallaiti, ZG-2 and ZG-3) in Pantnagar, Uttaranchal, India, during 2000-02. The correlation coefficient of 12 growth, fruiting and fruits quality characters of 24 ber cultivars indicated that the stem girth was positively and significantly correlated with total soluble solids, leaf area with leaf dry weight and titratable acidity, stone weight with acidity and fruit set with fruit drop. Stem girth was negatively and significantly correlated with fruit set, and stone weight with fruit drop.

Author S. Sato, K. Morita, H. Ikeda, H. Furukawa, H. Iimura and M. Kominato
Title Effects of defoliation on the incidence of blossom-end rot in tomato fruit (*Lycopersicon*)
Year 2004
Source title Horticultural Research (Japan)
Reference 3(2): 183-186

Abstract

We removed 50% of the leaflets from tomato cultivars NDM0112 (susceptible) and summer kiss (resistant), which reduced transpiration and xylem sap, to study the effects of defoliation on the incidence of blossom-end rot (BER). Both cultivars showed a reduced BER incidence after receiving defoliation treatment. Furthermore, the concentration of nutrient solutions used also affected the incidence of BER, where a higher concentration induced more BER. However, the defoliation treatment did not decrease the number of marketable fruits or the fresh weight per fruit. The defoliation treatment of tomatoes could reduce BER incidence without compromising marketable yield.

Author W. Chen, S. Hayakawa, T. Yamamoto, H. Su, I. Liu and J. Cheng
Title Mediation of beta -endorphin by the isoflavone puerarin to lower plasma glucose in STZ-diabetic rats
Year 2004
Source title *Planta Medica*
Reference 70(2): 113-116

Abstract

We investigated the mechanism(s) of the plasma-glucose-lowering action of puerarin (a constituent of *Pueraria lobata*, a herbal drug) in streptozotocin-induced diabetic rats (STZ-diabetic rats). Puerarin, at a dose which effectively reduced plasma glucose levels, increased plasma beta -endorphin-like immunoreactivity (BER) in STZ-diabetic rats. Both effects of puerarin were abolished by pretreatment with prazosin. Also, puerarin enhanced BER release from the isolated rat adrenal medulla in a concentration-dependent manner that could be abolished by prazosin. Moreover, bilateral adrenalectomy in STZ-diabetic rats eliminated the actions of puerarin including the plasma-glucose-lowering effect and the plasma-BER-elevating effect. In addition, naloxone and naloxonazine inhibited the plasma-glucose-lowering action of puerarin. Unlike in wild-type diabetic mice, puerarin failed to lower the plasma glucose in opioid micro -receptor knockout diabetic mice. Puerarin may activate alpha 1-adrenoceptors on the adrenal gland to enhance the secretion of beta -endorphin to result in a decrease of plasma glucose in STZ-diabetic rats.

Author W. Peng, C. Wu, C. Chen, C. Chen, Z. Leu and M. Hsieh
Title Anxiolytic effect of berberine on exploratory activity of the mouse in two experim
Year 2004
Source title Life Sciences
Reference 75(20): 2451-2462

Abstract

The aim of this study was to assess the anxiolytic effect of berberine (abbrev. BER) using two experimental anxiety models in the mouse. In the black and white test of anxiety, berberine (100, 500 mg/kg) produced an increase in the first time entry, time spent in the white section, and total changes between two compartments. On the other hand, in the elevated plus-maze test, berberine (100, 500 mg/kg) produced an increase in the time spent and arm entries in the open arms, and a decrease in the time spent and arm entries in the closed arms. Berberine (500 mg/kg) decreased locomotor activity in mice. Furthermore, BER at 100, 500 mg/kg decreased concentrations of NE, DA and 5-HT, and increased the concentrations of VMA, HVA and 5-HIAA in the brain stem. BER also attenuated the anxiogenic effect of WAY-100635, 8-OH DPAT and DOI and enhanced the anxiolytic effect of BUS, p-MPPI and RIT in the elevated plus-maze. These results suggested that berberine at 100 mg/kg had a significant anxiolytic-like effect, which was similar to that observed with 1 mg/kg diazepam and 2 mg/kg buspirone. The anxiolytic mechanism of BER might be related to the increase in turnover rates of monoamines in the brain stem and decreased serotonergic system activity. Moreover, BER decreased serotonergic system activity via activation of somatodendritic 5-HT_{1A} autoreceptors and inhibition of postsynaptic 5-HT_{1A} and 5-HT₂ receptors.

Author Y. O. Alekseyev, M. L. Hamm and J. M. Essigmann
Title Aflatoxin B1 formamidopyrimidine adducts are preferentially repaired by the nucl
Year 2004
Source title Carcinogenesis
Reference 25(6): 1045-1051

Abstract

Aflatoxin B1 (AFB1), the most potent member of the aflatoxin family of hepatocarcinogens, upon metabolic activation reacts with DNA and forms a population of covalent adducts. The most prevalent adduct, 8,9-dihydro-8-(N7-guanyl)-9-hydroxyaflatoxin (AFB1-N7-dG), as well as the AFB1 formamidopyrimidine adduct (AFB1-FAPY), resulting from imidazole ring opening of the major adduct, are thought to be responsible for mutations caused by AFB1. The AFB1-N7-dG lesions are rapidly removed in *Escherichia coli* and mammals, whereas the AFB1-FAPY lesions persist in mammalian cells, which along with the higher stability of this lesion suggests that AFB1-FAPY might significantly contribute to the observed toxicity and carcinogenicity of AFB1 in higher organisms. Other workers have shown in vitro evidence that AFB1-FAPY lesions are substrates for both nucleotide excision repair (NER) and base excision repair (BER). The present study, done in vivo, utilized a modified host cell reactivation assay and showed that AFB1-FAPY lesions are preferentially repaired in *E. coli* by NER. Comparisons of repair in wild-type, NER-deficient (*uvrA*), BER-deficient (*mutM*) and NER/BER double mutant *E. coli* strains transformed with plasmids enriched for AFB1-N7-dG or AFB1-FAPY lesions indicate that both lesions are efficiently repaired by NER-proficient cells (both wild-type and BER-deficient strains). We have found that the level of activity of the reporter gene is significantly affected by the presence of either lesion in NER-deficient strains due to the lack of repair. This effect is similar in NER-deficient and NER/BER-deficient strains indicating that BER (specifically in the strains we investigated) does not contribute significantly to the repair of these lesions in vivo. Consistent with this finding, in vitro analysis of AFB1-FAPY adduct excision by purified MutM and its functional analog human 8-oxoguanine DNA glycosylase using site-specifically modified oligonucleotides indicates that this lesion is a poor substrate for both proteins compared with canonical substrates for these enzymes, such as 7,8-dihydro-8-oxoguanine and methylformamidopyrimidine.

Author A. T. Yaragattikar and C. J. Itnal
Title Studies on water requirement during early growth stages of ber through drip irrigation
Year 2003
Source title Karnataka Journal of Agricultural Sciences
Reference 16(1): 17-21

Abstract

A field experiment was conducted during 1994-95 and 1995-96 in Dharwad, Karnataka, India, to determine the water requirement of ber [*Ziziphus mauritiana*] through drip irrigation. The ber trees were established in October 1992. Treatment combinations of wetted area (20, 40, 60 and 80%) and pan evaporation (25, 50 and 75%) were compared with surface irrigation and rainfed control. The mean fruit yield of ber was increased by 3.20 times with surface irrigation and 2.86-4.05 times under various drip irrigation treatments over rainfed control (8.0 q/ha). Scheduling of irrigation through drip considering 60% wetted area with 25% pan evaporation or 20% wetted area with 75% pan evaporation was found optimum with significantly highest fruit yield of 30.2 q/ha, saving in water (61.5 and 66.3% during 1994-95 and 1995-96, respectively) over surface irrigation. The highest water use efficiency (1.33 and 3.82 q/ha-cm during 1994-95 and 1995-96, respectively) was also recorded in this treatment. The main stem girth, canopy coverage and canopy volume during the early growth stages were significantly affected due to various water application rates through drip irrigation.

Author B. M. Patel, S. I. Patel, S. K. Patel and S. B. Patel
Title Intercropping studies in ber (*Zizyphus mauritiana* Lamk.).
Year 2003
Source title Agricultural Science Digest
Reference 23(2): 113-115

Abstract

A field experiment was conducted in Sardar Krushinagar, Gujarat, India, during 1991-92 to 1995-96 to study the effect of intercropping in ber (*Zizyphus mauritiana* [*Ziziphus mauritiana*]) plantation on yield and monetary return. Irrespective of intercrops tested (sorghum, green gram, pearl millet and cluster bean), ber-based intercropping system recorded 7.0% higher ber fruit yield than sole ber system. Similarly, ber-based intercropping system recorded 19.6% higher ber fruit equivalent yield than sole ber. Among the different systems, ber+green gram gave the highest net monetary return (Rs 13 099/ha) followed by ber+sorghum (Rs 11 886/ha). Intercropping in ber recorded on an average 10.0% higher monetary returns (Rs 11 329/ha) over sole ber system (Rs 10 287/ha) per annum.

Author B. S. Bhargava, L. R. Varalakshmi and G. B. Raturi
Title Nutrient concentration and uptake of fruits by ber varieties.
Year 2003
Source title Karnataka Journal of Agricultural Sciences
Reference 16(1): 92-97

Abstract

The concentration, distribution and uptake of various nutrients in the exocarp+mesocarp, endocarp and kernel of fruits of ber (*Z. mauritiana*) cultivars Kali, Kadaka, Kaithali, Gola Kadaka, Narma, Darakhi, Bhavanagar-1 and Meharwali were studied. The kernel was the major repository for N, Mg, S, Fe and Cu, while the endocarp was the major sink for K, Mg and Zn. The uptake of various nutrients by one tonne of fresh fruits was 6.62-12.84 kg N, 1.04-1.57 kg P, 5.46-7.26 kg K, 1.01-1.59 g Ca, 2.60-460 g Mg, 0.25-1.01 kg S, 360-660 g Fe, 14-22 g Mn, 18-27 g Zn and 11-15 g Cu. Darakhi removed the maximum (22 672 g) nutrients, while Gola Kadaka removed the minimum (16 237 g/tonne of fresh fruits). On an average, ber fruits contain 5.27 kg protein, 61.9 g P, 1.09 kg K, 120.8 g Ca and 8.59 g Fe in one tonne of edible fruit parts.

Author B. S. Bhati and P. K. Yadav
Title Effects of the foliar application of urea and NAA on the yield parameters of ber (
Year 2003
Source title Progressive Agriculture
Reference 3(1/2): 148-149

Abstract

The effects of the foliar application of urea (0, 1 or 2%) and NAA (0, 10, 20 or 30 ppm) on the yield and yield components of *Z. mauritiana* cv. Gola were studied in Bikaner, Rajasthan, India during 2000/2001. Urea and NAA were applied on the first week of October (pea stage) and at one month thereafter. Urea at 2% resulted in the greatest fruit length (3.304 cm), fruit breadth (3.222 cm), fruit weight (18.868 g), pulp to stone ratio (11.68), fruit retention (55.96%), yield per tree (54.32 kg) and benefit cost ratio (2.57). Among the NAA rates, 20 ppm recorded the greatest fruit length (3.42 cm), fruit breadth (3.027 cm), fruit weight (17.52 g), yield per tree (56.44 kg) and benefit cost ratio (2.72). The highest pulp to stone ratio and fruit retention were obtained with NAA at 20 (10.89 and 55.011%, respectively) and 30 ppm (10.64 and 52.134%, respectively).

Author G. J. Murtagh, D. B. Archer, M. Dumoulin, S. Ridout, S. Matthews, S. H. Arshad
Title In vitro stability and immunoreactivity of the native and recombinant plant food 2
Year 2003
Source title Clinical and Experimental Allergy
Reference 33(8): 1147-1152

Abstract

Background: The ability of an intact protein to reach the circulatory system may be a prerequisite to allergenicity and many allergens, particularly those from plant foods, have been found to be consistently more resistant to digestion by pepsin than other proteins. Objective: This study assessed the pepsinolytic stability of native 2S albumins from Brazil nut and sunflower seed and their recombinant versions produced in *Pichia pastoris*. The physicochemical stability of native and recombinant Brazil nut 2S albumins and recombinant sunflower seed 2S albumin was also assessed. The immunoreactivity of native Brazil nut 2S albumin and recombinant 2S albumins was compared using serum from patients allergic to Brazil nuts and animals immunized with native 2S albumins. Methods: Digestibility was measured in simulated gastric fluid followed by SDS-PAGE. Circular dichroism spectra were used to analyse unfolding, as proteins were denatured by temperature, pH and guanidinium chloride. Immunoreactivity was assessed by immunoblot, RAST and ELISA. Results: Brazil nut 2S albumin was significantly more resistant to proteolytic digestion than other Brazil nut proteins. It was also resistant to thermally and chemically induced denaturation. Equally high resistance to proteolytic digestion was observed with sunflower seed 2S albumin. The recombinant albumins mirrored their native counterparts in stability and immunoreactivity. Conclusion: The important food allergen Brazil nut 2S albumin is as stable to digestion as is sunflower seed 2S albumin, whose allergenicity has yet to be determined. The 2S albumins and their recombinant counterparts could not be easily denatured by physicochemical treatments. The results suggest that 2S albumin is the only Brazil nut protein to reach the gut immune system intact. The production of properly folded recombinant proteins will facilitate mechanistic studies as well as diagnostic testing and antigen-based therapies.

Author G. Lal, C. S. Pareek, N. L. Sen and A. K. Soni
Title Effect of N, P and K on growth, yield and quality of ber cv. Umran.
Year 2003
Source title Indian Journal of Horticulture
Reference 60(2): 158-162

Abstract

Four levels of N (0, 250, 500 and 750 g/plant) in combination with three levels each of P₂O₅ (0, 250 and 500 g/plant) and K₂O (0, 50 and 100 g/plant) were applied to ten-year-old plants of ber [Ziziphus mauritiana] cv. Umran grown in Rajasthan, India. The growth, yield and quality parameters improved significantly with added nitrogen. The application of phosphorus influenced all the parameters significantly except plant height, spread and fruit acidity. Potash application caused very little or no effect on growth and yield parameters. The treatment combination consisting of 500 g N, 500 g P₂O₅ and 50 g K₂O/plant was the best for obtaining the highest yield.

Author Ghaunadi A; Tavakoli N; Mehri-Ardestani M
Title Volatile constituents of the leaves of Ziziphus spina-christi (L.) Willd. from Bush
Year 2003
Source title Journal of Essential Oil Research
Reference 15(3): 191-192

Abstract

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Author I. J. Yadav, R. K. Sharma, S. Siddiqui and R. K. Godara
Title Effect of preharvest sprays of calcium on fruit physical characteristics, quality and
Year 2003
Source title Haryana Journal of Horticultural Sciences
Reference 32(1/2): 75-76

Abstract

The effects of calcium chloride (CC; 1.0, 1.5 or 2.0%), sprayed thrice before harvest at 10-day intervals, on the fruit quality of *Z. mauritiana* cv. Umran were studied. Fruit weight and pulp/stone ratio increased with increasing CC rate up to 1.5%. The moisture content of the pulp, which was not significantly affected by CC, varied from 88.05 to 88.93%. Flesh firmness, and ascorbic acid, chlorophyll a, chlorophyll b, and total chlorophyll contents increased with increasing CC rate up to 1.5%, then decreased at 2.0% CC. The Ca content of the pulp increased with the increase in CC rate. Acidity, and total soluble solid, total sugar, reducing sugar and carotenoid contents were not significantly affected by CC. It was concluded that plants treated with 1.5% CC thrice produced heavier and firm fruits with higher pulp/stone ratio, and ascorbic acid, total sugar, chlorophyll and

C a c o n t e n t s .

Author J. T. Cheng, I. M. Liu, T. F. Tzeng, W. C. Chen, S. Hayakawa and T. Yamamoto
Title Release of beta -endorphin by caffeic acid to lower plasma glucose in streptozotocin-induced diabetic rats
Year 2003
Source title Hormone and Metabolic Research
Reference 35(4): 251-258

Abstract

The role of alpha 1A-adrenoceptors in the regulation of opioid secretion from the adrenal glands of streptozotocin-induced diabetic rats (STZ-diabetic rats) was examined in an attempt to determine the mechanism of plasma glucose-lowering action of caffeic acid. In agreement with a previous report, we showed that caffeic acid produced a dose-dependent lowering of the plasma glucose concentration in STZ-diabetic rats along with an increase of plasma beta -endorphin-like immunoreactivity (BER). These actions of caffeic acid were abolished by pretreatment with WB 4101 or RS 17 056 at doses sufficient to block alpha 1A-adrenoceptors. In addition, naloxone and naloxonazine at doses effective for blocking opioid mu -receptors abolished the plasma glucose-lowering action of caffeic acid. Also, unlike that in wild-type diabetic mice, caffeic acid failed to produce a plasma glucose lowering effect in opioid mu -receptor knockout diabetic mice. We observed that caffeic acid could enhance BER release from isolated rat adrenal medulla in a concentration-dependent manner; inhibitors of alpha 1A-adrenoceptors such as WB 4101 and RS 1705 abolished this action. Investigations of the signal pathways further supported that activation of alpha 1A-adrenoceptor is responsible for the stimulatory effect of caffeic acid on BER secretion from the adrenal medulla. In the presence of U73312, a specific inhibitor of phospholipase C, the caffeic acid-induced increase of BER was reduced in a concentration-dependent manner, but it was not affected by U73343, the negative control of U73312. Chelerythrine and GF 109203X also diminished the action of caffeic acid at concentrations sufficient for inhibiting protein kinase C. Moreover, bilateral adrenalectomy in STZ-diabetic rats resulted in the loss of this plasma glucose-lowering effect of caffeic acid, and there was no increase in plasma BER with caffeic acid. Therefore, beta -endorphin release from the adrenal gland appears to be responsible for the lowering of plasma glucose in STZ-diabetic rats induced by caffeic acid, through the activation of alpha 1A-adrenoceptors.

Author Jinying L
Title Effects of VA mycorrhizal fungi inoculated on drought tolerance of wild jujube (Zizyphus jujuba) seedlings
Year 2003
Source title Acta Horticulturae Sinica
Reference 30(1): 29-33

Abstract

Author M. M. Gyi, A. K. Dikshit and O. P. Lal
Title Residue studies and bio-efficacy of lambda-cyhalothrin and beta-cyfluthrin in ber
Year 2003
Source title Pesticide Research Journal
Reference 15(1): 26-27

Abstract

Field experiments were conducted during 2000/01 and 2001/02 in New Delhi, India, on 15-year-old ber cv. Gola to study the effects of lambda -cyhalothrin and beta -cyfluthrin residues. The bio-efficacy of lambda -cyhalothrin and beta -cyfluthrin against the fruit fly *Carpomyia vesuviana* [*Carpomyia vesuviana*] was also studied. The treatments comprised of 8 sprays at 15 day intervals of 0.25 mg lambda -cyhalothrin and 18.75 mg beta -cyfluthrin/litre. The residues declined to non-detectable levels (<0.007 mg/kg) in 14 days. The initial deposits of beta -cyfluthrin varied from 0.56 to 0.76 mg/kg from both the years. beta -Cyfluthrin was not detectable after 7 days of the third spray in the first year and after 10 days in the second year. lambda -Cyhalothrin (12.38 and 11.02% of fruits damaged) was the most effective against *C. vesuviana*.

Author M. M. Gyi, O. P. Lal, A. K. Dikshit and V. P. Sharma
Title Efficacy of insecticides for controlling ber fruit fly.
Year 2003
Source title Annals of Plant Protection Sciences
Reference 11(1): 152-153

Abstract

Two field trials were conducted in New Delhi, India during 2000/01 and 2001/02 to evaluate the efficacy of endosulfan (0.07%), lambda-cyhalothrin (0.0025%), beta-cyfluthrin (0.00187%), cartap hydrochloride (0.05%), nimbecidine [azadirachtin] (5 ml/litre), Neemazal F (1 ml/litre), and alternate sprays of endosulfan and Neemazal against *Carpomyia vesuviana* infesting ber [*Ziziphus mauritiana*] (cv. Gola). Eight sprays of insecticides were given at 15-day intervals, commencing from the appearance of infestation. Infestation was recorded at harvest. The lowest mean *C. vesuviana* infestation (13.7%) was recorded with lambda-cyhalothrin treatment in the 2000/01 cropping season, followed by beta-cyfluthrin (15.1%). The highest mean infestation (37.3%) was recorded with nimbecidine treatment. Similar observations were recorded in 2001/02.

Author M. M. Jamadar and H. Venkatesh
Title Role of pruning and weather variables on powdery mildew incidence on ber in nor
Year 2003
Source title Karnataka Journal of Agricultural Sciences
Reference 16(4): 612-616

Abstract

In an experiment conducted during 1997/98, at Bijapur, Karnataka, India, 5-year-old trees of 2 ber (*Zizyphus mauritiana*) cultivars, Umran and Kadaka, were pruned at 3 different periods, 14 April, 29 April and 14 May, and subjected to 2 fungicide sprays, untreated and alternate spraying of triadimefon 0.1% followed by wetsulf [sulfur] 0.3% from blossoming (September) until harvest (December). Observations on powdery mildew (*Oidium erysiphoides* var. *ziziphi* [*O. erysiphoides* f. *ziziphi*]) incidence were recorded monthly. The average powdery mildew incidence revealed that Umran (22.3%) was more susceptible than Kadaka (10.6%). The average disease incidence in both cultivars was significantly higher when plants were pruned on 14 April than on later dates. Spraying of fungicides significantly reduced powdery mildew incidence in both cultivars. For the cultivar Umran, disease severity sharply increased from September to October and only marginally increased in November in unsprayed plants, whereas disease severity was almost equal in September and October and only slightly increased in November in sprayed plants. On the other hand, both sprayed and unsprayed plants of Kadaka recorded increasing disease severity from September to November and decreasing disease severity from November to December. The role of specific weather variables, rainfall, maximum and minimum temperature and morning and afternoon relative humidity, on the incidence of powdery mildew in the ber cultivars is discussed.

Author Maciuk A; Ghedira K; Thepenier P; Lavaud C; Zeches-Hanrot M
Title A new flavonol glycoside from leaves of *Zizyphus lotus*
Year 2003
Source title Pharmazie
Reference 58(2): 158-159

Abstract

Author P. R. Narwadkar and B. M. Rodge
Title Equilibrium studies of Kadaka variety of ber.
Year 2003
Source title Journal of Maharashtra Agricultural Universities
Reference 28(2): 206-207

Abstract

An experiment was conducted to study the equilibrium of ber (*Ziziphus mauritiana*) powder prepared from ber cv. Kadaka. Ber powder was prepared from unblanched, blanched, and sulfate-treated samples of Kadaka. The dried fruit pieces were ground to powder form and stored in 80 and 400 gauge polyethylene bags at room temperature for 2 months. Mould growth was observed at 65% relative humidity after 10, 12, and 18 days for unblanched, blanched, and blanched with sulfate treatments, respectively. The optimum relative humidity for all the treatments was 43%.

Author R. N. Prasad and B. B. Vashishtha
Title Evaluation of ber for processing.
Year 2003
Source title Scientific Horticulture
Reference 8(55-58)

Abstract

This paper focuses on the cultivation requirements and the development and standardization of processing techniques for ber [*Ziziphus mauritiana*] fruits such as preparation of ber squash, jam and preserves to stabilize their prices and utilize the surplus produce.

Author S. J. Tabatabaie, P. J. Gregory, L. Ho and P. Hadley
Title Split root system for the use of saline water in hydroponic tomato production.
Year 2003
Source title Acta Horticulturae
Reference 609, 307-312. Price(102 EURO)

Abstract

Tomato (*Lycopersicon esculentum* cv. DRK) plants were grown with split root system to determine the effect of an unequal distribution of salinity in the root zone on yield and blossom-end rot (BER). The roots of the plants were divided into two portions and each portion was irrigated with nutrient solutions differing in EC levels achieved by adding Na or all nutrients proportionally. The maximum yield was achieved in treatments with unequal EC when one portion of the roots received only water and the lowest in the high EC treatments. The reduced yield in the high EC treatment was due to the incidence of BER and reduced fruit size. In treatments with unequal salt distribution, the main source of water was from that portion of the root system in the least saline zone. The Na concentration in the leaves and fruits was reduced significantly where one portion of the root system was supplied with water. Solutions with high EC supplied to both sides of the root system significantly increased the incidence of BER, but when only water or a solution with low EC was supplied to one side, BER was reduced by 70%. Ca concentration in the distal end of the fruits was significantly higher in the treatments where one portion of the root system received water. It is concluded that high salinity had positive effects on yield and quality provided that one portion of the root system is placed in low EC or water only.

Author S. Omveer and K. K. Misra
Title Performance of ber (*Zizyphus mauritiana* Lamk.) cultivars under Tarai conditions
Year 2003
Source title Scientific Horticulture
Reference 8(41-53)

Abstract

The performance of 24 ber (*Z. mauritiana*) cultivars in terms of growth, yield and yield components was determined in a field experiment conducted in Pantnagar, Uttaranchal, India during 1998-99. Tree height, spread, girth, volume and area of trunk cross section (3616.08 cm²) were highest in Sanaur 5. Rohtak Gola, Seo and Sanaur 6 recorded the highest shoot length (248.00 cm), number of leaves per shoot (515.50) and number of shoots per tree (393.00), respectively. Sanaur 2 recorded the highest photosynthetic efficiency (0.18 mg/cm²/h), whereas yield efficiency was highest in ZG 2. The number of fruits per shoot (50.50) and per tree (214.10), and yield per tree (214.40) were highest in ZG3. The highest leaf length:breadth ratio (2.32) and leaf area (43.19) and dry weight per leaf (0.292 g) were recorded in Narikeli, Sanaur 3 and ZG 3, respectively.

Author S. Siddiqui and R. K. Sharma
Title Ripening of ber (*Ziziphus mauritiana* Lamk.) fruits on tree and in storage: changes
Year 2003
Source title Haryana Journal of Horticultural Sciences
Reference 32(1/2): 44-47

Abstract

Fruits of *Z. mauritiana* cv. Umran were harvested at 3 ripening stages based on fruit colour: green (stage I; mature), yellowish-green (stage II; colour turning), yellowish (stage III; half-ripe), brownish yellow (stage IV; fully ripe) and dark brown (stage V; overripe). Fruits were also harvested at stage I and allowed to ripen during storage at room temperature (32±3 degrees C) and 90±5% relative humidity. At each ripening stage, the activities of cell-wall-bound enzymes were studied. The flesh firmness decreased with the advancement of ripening. The reduction was relatively greater in fruits in storage than in fruits in trees. The activities of polygalacturonase and beta -D-galactosidase [beta-galactosidase] showed a negative correlation with fruit firmness during ripening. In stored fruits, the negative correlation of polygalacturonase activity with flesh firmness was greater, whereas in fruits in trees, the negative correlation of beta -D-galactosidase activity with flesh firmness was greater. The activity of pectin methylesterase [pectinesterase] showed a poor correlation with flesh firmness during ripening. The cellulase activity, which increased with the advancement of ripening, showed a high correlation with flesh firmness during ripening of fruits in trees, but exhibited a poor correlation with flesh firmness during ripening of fruits in storage. The correlation of enzyme activities with flesh firmness was greater when the fruits ripened in trees than in storage, indicating that enzymatic degradation of the cell wall is the key factor determining the firmness of fruits in trees, whereas in fruits under storage, other factors, such as turgor pressure and non-enzymatic autolysis, may be involved. Among the enzymes, polygalacturonase may be used as a marker for the evaluation of ripening in *Z. mauritiana*.

Author X. Hao and A. P. Papadopoulos
Title Effects of calcium and magnesium on growth, fruit yield and quality in a fall gree
Year 2003
Source title Canadian Journal of Plant Science
Reference 83(4): 903-912

Abstract

Tomato 'Trust' was grown on rockwool with two concentrations of calcium (150 and 300 mg/litre) in combination with four concentrations of magnesium (20, 50, 80 and 110 mg/litre) in autumn 1999, to investigate their effects on plant growth, leaf photosynthesis, and fruit yield and quality (fruit firmness, dry matter, soluble solids and russetting). High Ca (300 mg/litre) concentration increased fruit yield and reduced the incidence of blossom-end rot (BER) and fruit russetting compared with the low Ca concentration (150 mg/litre). High Ca concentration reduced fruit firmness but did not affect fruit size and leaf photosynthesis. Plants grown at 20 mg Mg/litre started to show leaf chlorosis on both the middle and bottom leaves 8 weeks after planting. Leaves with moderate chlorosis lost approximately 50% of their photosynthetic capacity. Fruit yield in the late growth stage decreased at 20 mg Mg/litre. Blossom-end rot incidence increased linearly with increasing Mg concentration in the early growth stage at low Ca, but BER incidence at high Ca was not affected by Mg concentration. Fruit firmness increased with increasing Mg concentration at low Ca. At high Ca, Mg concentration affected fruit firmness only late in the season; fruit firmness at 80 mg Mg/litre was higher than at 50 mg Mg/litre concentration. Fruit russetting in mid-season was affected by nutrient treatments, being the least at 300/50 mg Ca/Mg/litre. Therefore, for an autumn greenhouse tomato crop, the optimum Ca/Mg concentration for tomato production is estimated to be 300/50-80 mg/litre. The Mg concentration may be started at 50 mg/litre and gradually increased to 80 mg/litre towards the end of the season, to improve plant growth and fruit firmness.

Author A. K. Jaiswal, K. K. Sharma, K. K. Kumar and A. Bhattacharya
Title Households survey for assessing utilisation of conventional lac host trees for lac c
Year 2002
Source title New Agriculturist
Reference 13(1/2): 13-17

Abstract

A limited scale survey of some lac growing areas in the states of Jharkhand, West Bengal and Orissa, in India, was carried out. Socio-economic data were collected from 244, 280 and 77 households of these states, respectively. The pooled data of these 3 states indicated that 96% of the households own one or more than one species of the conventional lac host trees namely Kusum (*Schleichera oleosa*), Ber (*Ziziphus mauritiana*) and Palas (*Butea monosperma*). It also revealed that maximum number of households (81%) have Ber trees followed by Palas (71%) and Kusum (51%). In terms of host utilization for lac cultivation, maximum number of households (84%) utilized Ber trees followed by Palas (72%) and Kusum (57%). This pattern was more or less similar in West Bengal and Jharkhand whereas in Orissa, Kusum was the only lac-host available in the surveyed areas and 92% of the households were involved in lac cultivation. The data collected also provide information on the percentage of households having more than one kind of lac hosts and their utilization alone or in combination with other hosts for lac cultivation.

Author Abbas MF; Fandi BS
Title Respiration rate, ethylene production and biochemical changes during fruit develo
Year 2002
Source title Journal of the Science of Food and Agriculture
Reference 82(13): 1472-1476

Abstract

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Author Adzu, B., S. Amos, S. Dzarma, C. Wambebe and K. Gamaniel
Title Effect of zizyphus spina-christi willd aqueous extract on the central nervous syste
Year 2002
Source title Journal of Ethnopharmacology
Reference 79(1): 13 - 16

Abstract

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Author C. B. Kachave, H. B. Patil and S. S. Kadam
Title Extraction, carbohydrate composition and rheological characteristics of gum from
Year 2002
Source title Journal of Food Science and Technology (Mysore)
Reference 39(5): 542-544

Abstract

The gum from ber fruit was extracted at different stages of ripening (viz. green, half yellow and brown). The yield of gum was 0.54% at green fruit stage and increased with the advancement of ripening. The gum contained 86% total carbohydrates and D-galactose, D-mannose and D-arabinose as major sugars in the molar proportion of 1.9:1.5:1. Apparent viscosity, as a measure of rheological property revealed that viscosity of gum solution increased with increase in concentration of gum. B e r g u m s o l u t i o n e x h i b i t e d p s e u d o p l a s t i c b e h a v i o u r .

Author Chen, Z. L., Z. L. Yan and H. Xue
Title In vitro culture of leaves and plantlet regeneration of *Ziziphus jujuba* var. zhanhua
Year 2002
Source title Plant Physiology Communications
Reference 38(6): 584

Abstract

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Author Clifford, S. C., S. K. Arndt, M. Popp and H. G. Jones
Title Mucilages and polysaccharides in *Ziziphus* species (Rhamnaceae): Localization, c
Year 2002
Source title Journal of Experimental Botany
Reference 53(366): 131-138

Abstract

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Author Eley JG; Dovlatabadi H
Title Permeability enhancement activity from Ziziphus jujuba
Year 2002
Source title Pharmaceutical Biology
Reference 40(2): 149-153

Abstract

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Author Fletcher R
Title Ber (Ziziphus mauritiana Lam.). Fruits for the future 2. By O. P. Pareek
Year 2002
Source title New Zealand Journal of Crop and Horticultural Science
Reference 30(4): 305-306

Abstract

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Author G. Anuradha, S. Siddiqui and R. K. Sharma
Title Effect of hot water treatment, modified atmosphere and potassium permanganate
Year 2002
Source title Haryana Journal of Horticultural Sciences
Reference 31(1/2): 30-32

Abstract

The effects of modified atmosphere storage, alone or in combination with potassium permanganate treatment, and hot water treatment on the amylase, protease, polyphenol oxidase, catalase and peroxidase activity in fruits of ber (Ziziphus mauritiana) were determined. The activity of the enzymes were lowest with MAP + potassium permanganate treatment, followed by hot water treatment and modified atmosphere storage.

Author G. Colugnati, G. Crespan, F. Bregant, A. Gallas and D. Picco
Title Pinot Grigio rootstocks and their vegetative-productive performance
Year 2002
Source title Informatore Agrario
Reference 58(34): 63-67

Abstract

During 1995-2000 in an experimental vineyard in Bertolo, Udine province, Italy, grape cv. Pinot Grigio clone R6 was grown at a spacing of 3 x 1 m (3247 plants/ha) on 10 rootstocks derived from crosses involving *Vitis berlandieri* (Ber), *V. riparia* (Rip), *V. rupestris* (Rup) and *V. vinifera*. Rootstock effects on vine vigour and growth, fruit yield and quality, and vegetative-productive index were evaluated. Under Bertolo conditions, the best rootstocks for Pinot Grigio proved to be Kober 5BB (Ber x Rip), 1103P (Ber x Rup), 3309C (Rip x Rup) and Gravesac ((Ber x Rip) x (Rip x Rup)).

Author Grice AC
Title The biology of Australian weeds. 39. *Ziziphus mauritiana* Lam
Year 2002
Source title Plant Protection Quarterly
Reference 17(1): 2-11

Abstract

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Author He YQ; Li SD; Yang DF
Title Record of Indian jujube diseases in Yunnan Province
Year 2002
Source title Journal of the Yunnan Agricultural University
Reference 17(4): 397-399

Abstract

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Author He YQ; Li SD; Yang DF
Title Opinion on comprehensive utilization of Indian jujube, *Zizyphus mauritiana*
Year 2002
Source title Journal of the Yunnan Agricultural University
Reference 17(4): 411-413

Abstract

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Author He ZY; Wang YG; Shi WL
Title Tissue culture and plantlet regeneration of leaf of *Zizyphus jujuba*
Year 2002
Source title Plant Physiology Communications
Reference 38(5): 457

Abstract

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Author J. S. Kumar, A. Sarkar, B. N. Susheelamma and M. Venkateswarlu
Title Identification of mulberry genotypes for cultivation as tree.
Year 2002
Source title Indian Journal of Sericulture
Reference 41(1): 78-79

Abstract

An experiment was conducted to identify suitable mulberry cultivars that can be cultivated as trees. Eleven mulberry cultivars were planted for yield evaluation with cv. S-36 as the control. The cultivars V-1, S-13, BR-2 and Ber-S-1 (average yield of 6.71, 5.78, 5.74, and 5.0 MT ha⁻¹ year⁻¹, respectively) outyielded S-36 (3.99 MT ha⁻¹ year⁻¹) by 25-68%. V-1 and S-13 were at par with S-36 with respect to protein, sugar, and chlorophyll contents. V-1, which recorded significantly high leaf yield with comparable nutritive status may be considered as a superior genotype for cultivation as a

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Author K. Dinesh
Title Effect of pruning intensity on vegetative growth and yield of Indian jujube (*Ziziph*
Year 2002
Source title Indian Journal of Agricultural Sciences
Reference 72(11): 659-660

Abstract

A field experiment was conducted in Agra, Uttar Pradesh, India, during 1999-2001 to study the effects of pruning intensity on the vegetative growth and yield of Indian jujube or ber (*Z. mauritiana*) cultivars (Baranasi Karaka, Gola, Ponda Safeda, Sua-Mundi, and Jogia) under semi-arid conditions. The cultivars varied significantly in terms of the production and growth of primary, secondary, and tertiary branches. The maximum number of primary branches (4.45) was obtained with 25% pruning, whereas the highest number of secondary (6.70) and tertiary (6.12) branches were obtained with 50% pruning. The length of primary branches (146.77 cm) was greatest in the control. The longest secondary branches (73.74 cm) were obtained with 25% pruning, whereas the longest tertiary branches (31.31 cm) were obtained with 50% pruning. Ponda Safeda had the highest fruit yield (28.94 kg per tree), The highest fruit yield (25.92 kg per tree) was recorded for 50% pruning
i r r e s p e c t i v e o f c u l t i v a r .

Author K. Sunil and S. N. Ram
Title Effect of pruning levels and pasture combinations on ber-based hortipastoral syste
Year 2002
Source title Progressive Agriculture
Reference 2(2): 142-144

Abstract

The effects of pruning (20, 40 and 60 cm length of secondary branches) on the productivity of a 10-year-old plantation of ber [*Ziziphus mauritiana*] cv. Gola, with four combinations of pasture crops (*Panicum maximum*, *Stylosanthes hamata* and *Pennisetum pedicellatum*) as understorey, were studied at the Central Research Farm of Indian Grassland and Fodder Research Institute, Jhansi, Uttar Pradesh, India during 2001-02. Trees pruned at 40 cm height of secondary branches produced significantly higher fruit yield (33.59 kg per tree) than the severely pruned tree. The pasture combination did not show any adverse effect on ber production. Pasture production was significantly influenced by pruning level. Significantly higher pasture production was recorded for the severely pruned trees. The 20-cm pruning was best for understorey pasture production. Among the grass combinations, *P. maximum* + *S. hamata* produced significantly higher dry forage yield (5.38 t/ha).

Author Kachave CB; Patil HB; Kadam SS
Title Extraction, carbohydrate composition and rheological characteristics of gum from
Year 2002
Source title Journal of Food Science and Technology
Reference 39(5): 542-544
Abstract -

Author Kavitha Z; Savithri P
Title Documentation of insect pests on ber
Year 2002
Source title South Indian Horticulture
Reference 50(1/6): 223-225
Abstract -

Author Kim HS
Title Effects of the Zizyphus jujuba seed extract on the lipid components in hyperlipide
Year 2002
Source title Journal of Food Science and Nutrition
Reference 7(1): 72-77
Abstract -

Author Lahlou M; El Mahi M; Hamamouchi J
Title Evaluation of antifungal and molluscicidal activities of Moroccan Zizyphus lotus (
Year 2002
Source title Annales Pharmaceutiques Francaises (Paris)
Reference 60(6): 410-414
Abstract

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Author Lal G; Fageria MS; Gupta NK; Dhaka DS; Khandelwal SK
Title Shelf-life and quality of ber (Zizyphus mauritiana Lamk) fruits after postharvest w
Year 2002
Source title Journal of Horticultural Science and Biotechnology
Reference 77(5): 576-579
Abstract

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Author Le Croueour G; Thepenier P; Richard B; Petermann C; Ghedira K; Zeches-Hanrot
Title Lotusine g: A new cyclopeptide alkaloid from Zizyphus lotus
Year 2002
Source title Fitoterapia
Reference 73(1): 63-68
Abstract

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Author Li XE; Li WF; Pei WJ
Title Analysis of proteins in seed of spine date and seed of indian jujube
Year 2002
Source title Chinese Traditional and Herbal Drugs
Reference 33(1): 26-27

Abstract

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Author Li ZI; Feng YB
Title Different degrees of damage by Panonychus citri Mcgregor on different varieties
Year 2002
Source title Plant Protection
Reference 28(2): 21-22

Abstract

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Author M. Bogliolo, E. Cappelli, A. D'Oswaldo, O. Rossi, O. Barbieri, M. R. Kelley and
Title Effect of *S. cerevisiae* APN1 protein on mammalian DNA base excision repair.
Year 2002
Source title Anticancer Research
Reference 22(5): 2797-2804

Abstract

Mammalian cells transfected with the *S. cerevisiae* APN1 protein acquire resistance to oxidizing agents, the damage of which are mainly repaired via DNA base excision repair (BER). We have recently hypothesized that this effect might be linked to the possible capacity of APN1 to accelerate mammalian BER by its 3' diesterase activity. We have investigated here the effect of pure APN1 protein on BER performed by mouse embryonic fibroblast extracts. No significant acceleration was observed in the repair of either a single AP site cleaved by the bifunctional glycosylase NTH of *E. coli* or the repair of a single 8-oxoguanine, initiated by the bifunctional glycosylase OGG1. Similarly, no significant effect was observed on the repair of a single U (initiated by the monofunctional glycosylase U DNA glycosylase) or the repair of a single natural abasic site. The inability of APN1 to increase the efficiency of BER initiated by bifunctional glycosylases indicates that removal of 3' blocking fragments is not the rate limiting step of this repair pathway.

Author M. Hebbara, M. V. Manjunatha, S. G. Patil and D. R. Patil
Title Performance of fruit species in saline - waterlogged soils.
Year 2002
Source title Karnataka Journal of Agricultural Sciences
Reference 15(1): 94-98

Abstract

Saplings of twelve fruit species (mango, *Mangifera indica*; sapota, *Manilkara zapota*, cultivars Kalipatti and Cricket Ball; wood apple, *Limonia acidissima*; tamarind, *Tamarindus indica*; pomegranate, *Punica granatum*; custard apple, *Annona squamosa*; fig, *Ficus carica*; guava, *Psidium guajava*; ber, *Ziziphus mauritiana*; aonla, *Phyllanthus emblica*; jamun, *Syzygium cumini*; and pummelo, *Citrus maxima*) were planted during 1990 in Gangavati, Karnataka, India in three naturally occurring salinity blocks (9.3±2.8 dS/m, 65-70 cm water table; 16.4±4.1 dS/m, 75-90 cm water table; and 25.4±4.9 dS/m, 85-114 cm water table). Performance of the fruit species was evaluated during 1990-2000 in terms of survival percentage, plant height and diameter at stump height. Based on survival percentage and growth, fruit species such as mango, custard apple, fig, guava and pummelo were not suitable for soils having salinity of 9.3 dS/m and higher. Jamun and sapota survived and grew better under relatively lower salinity and shallower water table condition whereas, wood apple was found promising under relatively high salinity and deeper water table condition. Pomegranate and ber maintained a moderate survival and steady growth rate in low salinity and shallow water table conditions.

Author M. J. C. Alcocer, G. J. Murtagh, K. Bailey, M. Dumoulin, A. S. Meseguer, M. J. P
Title The disulphide mapping, folding and characterisation of recombinant Ber e 1, an a
Year 2002
Source title Journal of Molecular Biology
Reference 324(1): 165-175

Abstract

We have cloned and expressed genes encoding the allergenic brazil nut 2 S albumin (Ber e 1) and the sunflower albumin 8 (SFA8) in the methylotrophic yeast *Pichia pastoris*. We show that both proteins were secreted at high levels and that the purified proteins were properly folded. We also showed that Ber e 1 is glycosylated during secretion and that the glycan does not interfere with the folding or immunoreactivity. The disulphide map of the Ber e 1 protein was experimentally established and is in agreement with the conserved disulfide structure of other members of the 2 S albumin family. A model three-dimensional structure of the allergen was generated. During the expression studies and through mutation we have also shown that alteration of the sequences around the Kex2 endoproteolytic processing site in the expressed fusion protein can compromise the secretion by targeting part of the protein for possible degradation. The secreted production of these properly folded sulfur-rich plant albumins presents an opportunity to delineate the attributes that make an allergen and to facilitate the diagnosis and therapy of type I allergy.

Author Malik A; Kuliev ZA; Akhmedov UA; Vdovin AD; Abdullaev ND
Title New oligomeric proanthocyanidine from Ziziphus jujuba
Year 2002
Source title Chemistry of Natural Compounds C/C of Khimiia Prirodnikh Soedinenii
Reference 38(1): 40-42

Abstract

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Author N. R. Godhara, A. K. Gupta, S. K. Bhatia, R. S. Saini, P. C. Gupta and R. L. Mada
Title Safeda Rohtak (Reg. No. INGR 01016) ber.
Year 2002
Source title Indian Journal of Genetics and Plant Breeding
Reference 62(1): 95

Abstract

Safeda Rohtak is a new ber (*Zizyphus mauritiana* [*Zizyphus mauritiana*]) cultivar selected in local orchards in Haryana, India, for its resistance to powdery mildew caused by *Oidium erysiphoides* [*Sphaerotheca fuliginea*] f.sp. *ziziphi*. It is submitted for the registration of plant variety rights in I n d i a .

Author Nazif NM
Title Phytoconstituents of *Zizyphus spina-christi* L. fruits and their antimicrobial activit
Year 2002
Source title Food Chemistry
Reference 76(1): 77-81

Abstract

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Author Outlaw WH; Zhang S; Riddle KA; Womble AK; Anderson LC; Outlaw WM; Out
Title The jujube (*Ziziphus jujuba* Mill.), a multipurpose plant
Year 2002
Source title Economic Botany
Reference 56(2): 198-200

Abstract

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Author P. Srimathi, G. Sastri, E. P. Venkatasalam and K. Malarkodi
Title Efficacy of density grading in ber stones of cv. Umran (*Zizyphus mauritiana* Lam
Year 2002
Source title Progressive Horticulture
Reference 34(2): 179-182

Abstract

Fruits of ber cv. Umran were collected from an orchard in Coimbatore, Tamil Nadu, India, both from the ground and crown possessing yellow to red pericarp. The stones were extracted manually with a sharp knife, washed with water and air-dried. The dried stones were soaked in 15, 18 and 20% salt solutions and in water (control). Immediately after soaking, stones that float were graded as "floaters" while those that sank were graded as "sinkers". In general, the recovery of floaters increased with increasing salt concentration. Seeds from fruits collected from the crown exhibited higher germination than those collected from the ground. Germination was improved by grading the stones using 20% salt solution. Sinker seeds alone could be used for elite seedling production in a

n u r s e r y .

Author R. N. Prasad and G. J. Bankar
Title Effect of N and P on growth, yield and quality of ber grown under rainfed conditi
Year 2002
Source title Progressive Horticulture
Reference 34(2): 192-195

Abstract

The effects of N (0, 250, 500 and 750 g/plant) and P (0 and 250 g/plant) on the growth, yield and quality of ber (*Ziziphus mauritiana* cv. Gola) were investigated from 1990/91 to 1993/94 in Jodhpur, Rajasthan, India. Plant height, plant spread and stem girth increased with increasing concentration of N and P fertilizers. N at 750 g/plant and P at 250 g/plant recorded the highest yields of 54.45 and 42.93 g/plant, respectively. Fruit size, fruit weight and total soluble solids increased with increasing c o n c e n t r a t i o n o f N a n d P f e r t i l i z e r s .

Author R. P. Barbind and V. J. Kambale
Title VFA profile under different feeding regimens in goat.
Year 2002
Source title Indian Journal of Animal Research
Reference 36(1): 52-54

Abstract

Rumen liquor samples were collected from fistulated goats, fed on different tree leaves viz. babul (*Acacia arabica*), ber (*Ziziphus mauritiana*) and Peepal (*Ficus religiosa*) and some cultivated forages viz. lucerne (*Medicago sativa*) and maize (*Zea mays*). The samples were collected before offering feed and water to the animals and subsequently, after 2 h interval i.e. 2, 4, 6 and 8 after feeding. The samples were subjected to determination of pH and VFA (volatile fatty acids) concentration. The data revealed that pH of rumen fluid was the highest at 0 h which declined up to 6 h after feeding. The trend of VFA was at peak at 6 h after feeding. The differences among the forages and period of sample collection were significant for both pH and VFA production.

Author S. Pareek, M. S. Fageria and R. S. Dhaka
Title Performance of ber genotypes under arid condition.
Year 2002
Source title Current Agriculture
Reference 26(1/2): 63-65

Abstract

Eight *Ziziphus mauritiana* genotypes (Gola, Seb, Umran, Mundia, Illaichi, Tikadi, Jogiya and Bagwadi) and 3 local selections of *Z. rotundifolia* (Local-1, -2 and -3) were evaluated for their performance in Jobner, Rajasthan, India during 1999-2000. Gola, Seb and Umran showed more vigorous growth compared to the others. The longest fruit (3.87 cm) was observed in Mundia, while Seb had the highest fruit breadth (2.9 cm). Umran had the highest fruit weight (17.29 g). Ascorbic acid content was in the range 36.56-167.90 mg/100 g, with the lowest and highest values in Local-3 and Bagwadi, respectively. Gola showed the best height, spread, yield and acidity. Jogiya was the sweetest tasting cultivar, with the highest total soluble solids content.

Author S. Sultan, R. S. Singhrot and S. K. Bhatia
Title Studies on success of bare rooted budlings of ber (*Zizyphus mauritiana* Lamk.) at
Year 2002
Source title Haryana Journal of Horticultural Sciences
Reference 31(3/4): 158-160

Abstract

Bare rooted and defoliated budded plants of ber (*Z. mauritiana* cv. Umran) were transplanted in a field in Hisar, Haryana, India, in 1996 and 1997. The treatments, applied immediately after uprooting, 24 h before transplanting, were: control (defoliated); defoliated + IBA at 200 ppm; defoliated + nutrient solution (0.2 g potassium nitrate + 0.2 g potassium hypophosphate + 1 ml ferric tartrate + 0.8 g calcium nitrate + 0.2 g magnesium sulfate + 2 g dithane Z-78/litre); defoliated + IBA + nutrient solution. Tip drying 30 days after transplanting was reduced for all treatments (30.0-30.9%) compared with the control (40.4%) . Results showed that the number of leaves and plant height 180 days after transplanting were highest for the defoliation + IBA treatment. Transplanting success with the bare roots was in the range 96.25-100% after 30 days.

Author Sharma S; Panwar RD
Title Varietal behaviour under varying powdery mildew (*Oidium erysiphoides* f sp zizi)
Year 2002
Source title Indian Journal of Agricultural Sciences
Reference 72(3): 184-185
Abstract

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Author Su BN; Cuendet M; Farnsworth NR; Fong HHS; Pezzuto JM; Kinghorn AD
Title Activity-guided fractionation of the seeds of *Ziziphus jujuba* using a cyclooxygenase
Year 2002
Source title Planta Medica
Reference 68(12): 1125-1127
Abstract

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Author T. Pradeep and N. D. Jambhale
Title Relationship between phenolics, polyphenol oxidase and peroxidases and resistance
Year 2002
Source title Indian Phytopathology
Reference 55(2): 195-196

Abstract

The relationship between phenolics, polyphenol oxidase [catechol oxidase] and peroxidases and resistance to powdery mildew (caused by *Oidium erysiphoides* f. *zizyphi*) was investigated in ber (*Zizyphus mauritiana* [*Zizyphus mauritiana*]). Powdery mildew resistant diploid genotypes, namely Darakhi-1, Darakhi-2, Guli, Villaiti, and 5 susceptible cultivars, namely Chhuhara, Kadaka and Umran (tetraploid), Dandan (pentaploid) and Illaichi (octaploid), were selected for estimation of total phenols and specific enzyme activities of polyphenol oxidase (PPO) and peroxidase (PO) in ripe and unripe (infection stage) healthy fruits. No definite pattern was observed for these biochemical parameters and clearly suggest that phenolics, PPO and PO cannot be used as parameters to assess disease resistance in ber genotypes. However, the inherent variation observed in the phenolic content of immature, resistant and susceptible ber genotypes with respect to their ploidy levels could be genotype specific and therefore would be helpful in discriminating the genotypes biochemically in addition to their cytological status. Similarly, non-significant differences between the genotypes of different ploidy levels for these biochemical parameters and absence of a certain trend clearly suggest the existing genetic differences.

Author Thomas D; Kulwal LV
Title Preparation of jam from ber fruits (*Zizyphus mauritiana* L.)
Year 2002
Source title Indian Food Packer
Reference 56(1): 57-59

Abstract

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Author Wang HY; Zhang XS; Li Y
Title Tissue culture of Ziziphus jujuba cv. Huizao
Year 2002
Source title Plant Physiology Communications
Reference 38(6): 595
Abstract

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Author Weekley CW; Kubisiak TL; Race TM
Title Genetic impoverishment and cross-incompatibility in remnant genotypes of Ziziph
Year 2002
Source title Biodiversity and Conservation
Reference 11(11): 2027-2046
Abstract

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Author Yan ZL; Chen ZL; Xue H
Title Tissue culture and rapid propagation of Ziziphus jujuba var. Muzao
Year 2002
Source title Plant Physiology Communications
Reference 38(6): 585
Abstract

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Author Yang P; Zheng XJ; Wang YG
Title Changes of cell microstructure and activity of three protection enzymes in the pro
Year 2002
Source title Plant Physiology Communications
Reference 38(4): 341-343

Abstract

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Author Z. Kavitha and P. Savithri
Title Documentation of insect pests on ber.
Year 2002
Source title South Indian Horticulture
Reference 50(1/3): 223-225

Abstract

A weekly survey was conducted in Andhra Pradesh, India during July-February 1999-2000 to determine the presence of insect pests on ber. Based on the nature of damage, symptoms of damage, and crop stage, 9 species of foliage feeders, 9 sucking insects, 1 flower beetle, and 2 fruit damagers were recorded. Tabulated data on the common name, scientific name, Order, and Family of the insect and affected plant parts are presented.

Author Z. Kavitha and P. Savithri
Title New record of some natural enemies on ber pests in Tirupati Region.
Year 2002
Source title South Indian Horticulture
Reference 50(4/6): 513-514

Abstract

A study on the natural enemies, i.e. predators and parasites, associated with various pests of ber (*Ziziphus jujuba*) in Tirupati, Andhra Pradesh, India, was conducted. A brownish black pentatomid bug, *Canthecona furcellata* [*Eocanthecona furcellata*], was observed to predate on the geometrid larva (unidentified species) and on the lymantriid larva (*Porthesia scintillans* [*Euproctis scintillans*]). A braconid parasite, *Apanteles* sp., was observed to parasitize the lymantriid larva, *P. scintillans*. The third instar of the white hairy larva of *Thiacidas postica*, was observed to be parasitized by a solitary braconid endoparasitoid, *Dolichogenidea hyposidrae*. A dryinid parasitoid (Hymenoptera) was observed to parasitize on ber leafhopper, *Qadria pakistanika*. A dipteran parasitoid was found on the 6th instar larva of *T. postica*. This can be considered as a potential parasitoid, recording mortality of 9.8%.

Author A. B. Ansary, M. Hossain and M. N. Bari
Title Analysis of honey and incidence of diseases, pests and predators in the colony of
Year 2001
Source title Bangladesh Journal of Entomology
Reference 11(1/2): 21-30

Abstract

Laboratory experiments were conducted to analyse honey and to determine the incidence of diseases, pests and predators in the colony of honey bee, *A. cerana*. Mustard honey and ber (*Ziziphus mauritiana*) honey were used. In the mustard honey, on an average, 67.46% reducing sugar, 4.85% nonreducing sugar, 72.31% total sugar, 25.52% moisture and 0.19% ash were found. On the other hand, 65.43% reducing sugar, 4.68% nonreducing sugar, 70.11% total sugar, 27.44% moisture and 0.61% ash were found in ber honey. Among the diseases, European foul brood caused by *Melissococcus pluton* [*M. plutonius*] attacked the colonies, the highest infection being recorded in January (76%). No infection occurred from July to November. Infestation of combs by the greater wax moth, *Galleria mellonella* was highest in June (59.33%). Mite infestation in the colonies caused by *Varroa jacobsoni* was recorded only in May and June. Infestation by the wax beetle, *Platylabus alvearium* and the wasp, *Vespa orientalis*, were also recorded but did little damage.

Author A. Bar-Tal, M. Keinan, B. Aloni, L. Karni, Y. Oserovitz, S. Gantz, A. Hazan, M. I
Title Relationships between blossom- end rot and water availability and Ca fertilization
Year 2001
Source title Acta Horticulturae
Reference 554(97-104)

Abstract

Blossom end rot (BER) is one of the main physiological disorders in bell pepper fruit, reducing export and marketable yield during late spring and summer in Israel. BER occurrence has been related to Ca deficiency and water supply to the fruit. The objective of the present study was to explore management means to minimize this phenomenon. The effects of three irrigation frequencies (3, 6 and 12 times a day) on greenhouse-grown bell pepper plants were studied in two years experiments. In the first year the irrigation treatments were combined with three Ca concentrations in the irrigation solution (50, 100 and 150 mg l⁻¹). In the second year they were combined with three types of tuff of different particle diameters (0-2 mm (fine), 0-4 mm (medium) and 0-8 mm (coarse)). Increasing Ca concentration in the solution resulted in higher Ca content in pepper leaf and fruit. High irrigation frequency enhanced Ca concentration in leaf and fruit, especially of the low Ca treatment. Irrigation frequency and Ca concentration in the solution influenced the incidence of BER during the late springtime; the lowest BER incidence was obtained in the combination of the most frequent irrigation with the highest solution Ca concentration. Ca content in plant organs increased and the BER decreased as the growth medium particle diameter decreased. The greatest effect of high irrigation frequency on reducing BER was obtained in coarse particle substrate. High irrigation frequency minimized the amplitude in the water content of the growth medium. This is probably the cause of the enhanced Ca uptake and reduction in the BER occurrence by high irrigation frequency.

Author A. K. Olsen, H. Bjrtuft, R. Wiger, J. A. Holme, E. C. Seeberg, M. Bjrns and G. Br
Title Highly efficient base excision repair (BER) in human and rat male germ cells.
Year 2001
Source title Nucleic Acids Research
Reference 29(8): 1781-1790

Abstract

The quality of germ cell DNA is critical for the fate of the offspring, yet there is limited knowledge of the DNA repair capabilities of such cells. One of the main DNA repair pathways is base excision repair (BER) which is initiated by DNA glycosylases that excise damaged bases, followed by incision of the generated abasic (AP) sites. We have studied human and rat methylpurine-DNA glycosylase (MPG), uracil-DNA glycosylase (UNG), and the major AP endonuclease (HAP1/APEX) in male germ cells. Enzymatic activities and western analyses indicate that these enzymes are present in human and rat male germ cells in amounts that are at least as high as in somatic cells. Minor differences were observed between different cellular stages of rat spermatogenesis and spermiogenesis. Repair of methylated DNA was also studied at the cellular level using the Comet assay. The repair was highly efficient in both human and rat male germ cells, in primary spermatocytes as well as round spermatids, compared to rat mononuclear blood cells or hepatocytes. This efficient BER removes frequently occurring DNA lesions that arise spontaneously or via environmental agents, thereby minimizing the number of potential mutations transferred to the next generation.

Author Adzu, B., S. Amos, C. Wambebe and K. Gamaniel
Title Antinociceptive activity of Zizyphus spina-christi root bark extract
Year 2001
Source title Fitoterapia
Reference 72(4): 344-350

Abstract

Author Aganga, A. A. and K. W. Mosase
Title Tannin content, nutritive value and dry matter digestibility of *Lonchocarpus capas*
Year 2001
Source title Animal Feed Science and Technology
Reference 91(1-2): 107-113
Abstract

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Author Alighanadi, A. and M. Mehri-Ardestani
Title Volatile constituents of the leaves of *Ziziphus spina-christi* (L.) willd. From Iran
Year 2001
Source title International Conference on Biodiversity, Antalya, Turkey
Reference New York, 319-322 pp
Abstract

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Author Arndt SK; Clifford SC; Wanek W; Jones HG; Popp M
Title Physiological and morphological adaptations of the fruit tree *Ziziphus rotundifolia*
Year 2001
Source title Tree Physiology
Reference 21(11): 705-716
Abstract

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Author Arndt SK; Kayser O
Title Ziziphus - a medicinal plant genus with tradition and future potential. OT: Ziziphu
Year 2001
Source title Zeitschrift Fur Phytotherapie
Reference 22(2): 98-106

Abstract

Fruit tree species of the genus *Ziziphus* are examples of multipurpose plants with great potential for ethnomedicinal use. *Z. jujuba* and *Z. nummularia* are of high interest in ethnomedicine due to their plant parts and herbal preparations. Although *Ziziphus* does not exhibit major extraordinary ethnopharmacological properties, it is a recognized genus which is used ethnomedicinally for the treatment of diabetes (type II), wound healing antibiosis and for its anxiolytic and sedative properties. The occurrence of natural products is represented by cyclopeptides, triterpenesaponins and flavonoids. An overview of the botany, ethnomedicinal aspects and phytochemistry of *Ziziphus* is presented.

Author Assaeed, A. M. and A. M. Falatah
Title Effect of seed treatment on germination of *Ziziphus nummularia* and soil texture a
Year 2001
Source title Alexandria Journal of Agricultural Research
Reference 46(3): 31-36

Abstract

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Author B. R. Gadi and S. P. Bohra
Title Note on effect of bayleton on the enzymes of ammonia assimilation in ber seedlin
Year 2001
Source title Current Agriculture
Reference 25(1/2): 139-141

Abstract

Changes in the activities of enzymes involved in ammonia assimilation in ber (*Ziziphus mauritiana* var. *rotundifolia*) grown in vitro in the presence of Bayleton (triadimefon) under normal and thermal stress were studied. Cotyledons of 5-day-old seedlings were treated with different concentrations of Bayleton (5 and 20 mg/litre). Heat stress was induced by keeping the seedlings at 50±2 degrees C for 2 h before the enzyme analysis. The control seedlings grown in the absence of Bayleton and subjected to heat stress showed inhibited activity of nitrate reductase (NR), glutamine synthetase [glutamate-ammonia ligase] (GS), glutamate dehydrogenase (GDH) and glutamate synthase (GOGAT). Seedlings grown in higher Bayleton concentration showed increased NR activity in thermal stress, and the reverse was found in unstressed condition. An increase in GDH activity was observed in seedlings treated with higher Bayleton concentration under unstressed and stressed conditions. Seedlings treated with Bayleton showed increased activity of GS and GOGAT in unstressed condition, whereas the reverse was observed in thermal stress condition.

Author B. R. Gadi, L. Vidhya and S. P. Bohra
Title Note on effect of plant growth regulators on net photosynthetic rate, transpiration
Year 2001
Source title Current Agriculture
Reference 25(1/2): 143-146

Abstract

A field experiment was carried out in 2001, in Jodhpur, Rajasthan, India, to assess the effect of various concentrations of plant growth regulators (PGRs: salicylic acid, Bayleton [triadimefon], ethephon and Morphactin [chlorflurenol]) on net photosynthetic rate (Pn), transpiration rate (Tr) and stomatal resistance (Sr) at pre- and post-flowering stages of ber (*Zizyphus mauritiana* [*Ziziphus mauritiana*] cv. Seb) grown under moisture stress condition. Variable rates of Pn, Tr and Sr were obtained by treating the plants with PGRs, which showed that PGRs played an important role in maintaining the physical environment suitable for the plant, and also influenced the different physiological activities.

Author B. S. Chundawat
Title Integrated nutrient management in tropical and subtropical fruits.
Year 2001
Source title Indian Journal of Horticulture
Reference 58(1/2): 59-69

Abstract

The manure and N:P:K requirements of some tropical and subtropical fruit crops are presented. The appropriate timing and method of fertilizer application to mango, banana, citrus, guava, grape, litchi [Litchi chinensis], pawpaw, pineapple, pomegranate, ber [Zizyphus mauritiana], sapota, and aonla [Phyllanthus emblica] is briefly discussed. The beneficial effects of nitrogen fixing bacteria (Azotobacter and Azospirillum) and vesicular arbuscular mycorrhiza on some fruit crops are m e n t i o n e d .

Author Balamohan, T. N., D. A. Nayaki, R. Rajagopalan and M. Sivanantham
Title Effect of sodic soil on popular cultivars of ber (Zizyphus mauritiana Lam.)
Year 2001
Source title South Indian Horticulture
Reference 49 (Special issue): 382-383

Abstract

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Author Bhatia, S. K., S. Singh, M. S. Joon and R. S. Singhrot
Title Effect of hardening on establishing ber orchard under semi-arid conditions
Year 2001
Source title Haryana Journal of Horticultural Sciences
Reference 30(1/2): 68-69

Abstract

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Author Chang, L. H., D. N. Wang and T. D. Liou
Title A bud sport of indian jujube (*Zizyphus maurtiana lam.*) tainung no.1
Year 2001
Source title Journal of Agricultural Research of China
Reference 50(1): 28-36

Abstract

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Author Cheng, Y. f. and X. l. Wang
Title The somatic embryogenesis and its histological characteristics of *Zizyphus jujuba*
Year 2001
Source title Acta Botanica Boreali Occidentalia Sinica
Reference 21(1): 142-145

Abstract

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Author D. Gackowski, R. Rozalski, K. Roszkowski, A. Jawien, M. Foksinski and R. Olins
Title 8-Oxo-7,8-dihydroguanine and 8-oxo-7,8-dihydro-2'-deoxyguanosine levels in hu
Year 2001
Source title Free Radical Research
Reference 35(6): 825-832

Abstract

In the present study, we used the method involving high performance liquid chromatography pre-purification followed by gas chromatography with isotope dilution mass spectrometric detection for the determination of 8-oxo-7,8-dihydro-2'-deoxyguanosine (8-oxodGuo) and 8-oxo-7,8-dihydroguanine (8-oxoGua) in human urine [Poland]. The mean levels of 8-oxoGua and 8-oxodGuo in the urine samples of the subjects on unrestricted diet were respectively 1.87 nmol/kg 24 h (+or-0.90) and 0.83 nmol/kg 24 h (+or-0.49), and in the case of the groups studied, they did not depend on the applied diet. The sum of the amounts of both compounds in urine can give information about the formation rate of 8-oxoGua in cellular DNA. It is also likely that the levels of modified nucleobase/side in urine sample are reflective of the involvement of different repair pathways responsible for the removal of 8-oxodGuo from DNA, namely base excision repair (BER) and nucleotide excision repair (NER).

Author D. Shobha, B. Pushpa, R. K. Naik and C. Bharati

Title Preservation of ber fruit using dehydration.

Year 2001

Source title Karnataka Journal of Agricultural Sciences

Reference 14(2): 538-540

Abstract

Ber (*Ziziphus mauritiana* cv. Umran) fruits were preserved by dehydration. Osmotic exudates of the fruits were separated during drying, and sterilized and stored for 5 months. Dried chips and rings were packed in polyethylene pouches and stored in Al boxes for 5 and 2 months, respectively. Moisture content in the dried chips and rings increased with storage duration. Organoleptic evaluation showed that the acceptability of the exudates, chips and rings was 93, 75.3 and 62%, respectively.

Author Dongmei S; Shujun C; Fangcheng B

Title A study on peroxidase isoenzymes of leaves in *Ziziphus spinosus* Hu. and seven

Year 2001

Source title Acta Horticulturae Sinica

Reference 28(3): 265-267

Abstract

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Author G. G. Rao and M. K. Khandelwal
Title Performance of ber (*Zizyphus mauritiana*) and pomegranate (*Punica granatum*) on
Year 2001
Source title Indian Journal of Soil Conservation
Reference 29(1): 59-64

Abstract

Salt-affected soils occurring in Gujarat state are either lying barren or possess some native hardy species and coarse grasses. An attempt has been made to study the physiology of salt tolerance of arid fruit species like ber (*Zizyphus mauritiana* [*Zizyphus mauritiana*]) and pomegranate grown on sandy loam saline and saline black soils. Results indicated that pomegranate is more tolerant than ber in terms of osmoregulation, better tissue tolerance and yielding ability. Ber yielded better on sandy loam saline soils salinity up to 6 dS m⁻¹ and pomegranate was found ideal for saline black soils with salinity up to 12 dS m⁻¹. Results are discussed in relation to the adaptability of these species to salinity of the soils.

Author G. Lal, R. G. Jat, R. S. Dhaka and S. K. Goyal
Title Physico-chemical attributes of Umran ber (*Zizyphus mauritiana* Lamk) as affected
Year 2001
Source title Journal of Eco-Physiology
Reference 4(1/2): 61-63

Abstract

An experiment was conducted to find out the most effective combination of nitrogen and potassium for improving the growth, yield and fruit quality of Umran ber. Results revealed that better quality fruits with pulp/stone ratio (14.06), TSS (16.51%) and acidity (0.119%) were produced by N2K0 treatment combination (500 g N+0 g K/plant/year). The maximum yield (55.58 kg/plant/year) was obtained in N2K2 (500 g N+100 g K/plant/year), however, it was at par (50.74 kg/plant/year) in N2K0 (500 g N+0 g K/plat/year). The vegetative growth of the trees was also recorded maximum in N 2 K 0 t r e a t m e n t c o m b i n a t i o n .

Author G. Lal, R. S. Dhaka, V. K. Agarwal, S. K. Goyal and C. S. Pareek
Title A note on physico-chemical attributes of Umran ber as affected by application of
Year 2001
Source title Haryana Journal of Horticultural Sciences
Reference 30(3/4): 204-205

Abstract

Ten-year-old ber (*Ziziphus mauritiana*) plants were supplied with 0 (N0), 250 (N1), 500 (N2) and 750 (N3) g N/plant per year in combination with 0 (K0), 50 (K1) and 100 (K2) g K/plant per year in a field experiment conducted in Rajasthan, India during 1994-95, 1995-96 and 1996-97 to determine the suitable N and K combination for quality fruit production of ber. Plant height and spread were highest with N2+K0 application (3.18 m and 20.98 m², respectively); stem girth and total soluble solids with N1+K2 (51.40 cm and 17.57%, respectively); fruit weight and pulp:stone ratio with N2+K1 (26.21 g and 16.72, respectively); and acidity with N3+K1 (0.121%). The highest yield was recorded with N2+K2 (55.58 kg/plant) followed by N2+K1 application (54.53 kg/plant). The experimental soil had sufficient amount of available K hence, application of the macronutrient had little or no effect at all on the growth, yield and yield attributes of ber.

Author G. W. Intano, C. A. McMahan, R. B. Walter, J. R. McCarrey and C. A. Walter
Title Mixed spermatogenic germ cell nuclear extracts exhibit high base excision repair
Year 2001
Source title Nucleic Acids Research
Reference 29(6): 1366-1372

Abstract

Spermatogenic cells exhibit a lower spontaneous mutation frequency than somatic tissues in a lacI transgene, and many base excision repair (BER) genes display the highest observed level of expression in the testis. Uracil-DNA glycosylase-initiated BER activity was measured in nuclear extracts prepared from tissues obtained from each of three male mouse strains (C57BL/6J, CD1 and B6D2F1). Extracts from mixed spermatogenic germ cells displayed the greatest activity followed by liver then brain for all three strains, and the activity for a given tissue was consistent among the three strains. Levels of various BER proteins were examined by western blot analyses and found to be consistent with activity levels. Nuclear extracts prepared from purified Sertoli cells, a somatic component of the seminiferous epithelium, exhibited significantly lower activity than mixed spermatogenic cell-type nuclear extracts, thereby suggesting that the high BER activity observed in mixed germ cell nuclear extracts was not characteristic of all testicular cell types. Nuclear extracts from thymocytes and small intestines were assayed to assess activity in a mitotically active cell type and tissue. Overall, the order of tissues/cells exhibiting the greatest to lowest activity are mixed germ cells > Sertoli cells > thymocytes > small intestine > liver > brain.

Author Gupta, N. K., S. Gupta, S. K. Goyal and B. M. Sharma
Title Changes in the ripening stage and quality of ber (*Ziziphus mauritiana* Lam.) cv. M
Year 2001
Source title Annals of Arid Zone
Reference 40(4): 495-497

Abstract

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Author H. Morikuni and N. Shimada
Title The influence of nitrogen sources on blossom end rot of tomatoes grown in isolate
Year 2001
Source title Japanese Journal of Soil Science and Plant Nutrition
Reference 72(4): 489-498

Abstract

Tomato plants were grown on uncultivated soil packed in boxes, and the influence of three factors, nitrogen sources, N application rates and soil moisture, on the incidence of blossom end rot (BER), a Ca-related disorder, was investigated. An experiment was also conducted at an isolated bed after the sterilization of the media, and the effect of nitrate N application on the BER and the calcium concentration in petiole sap was examined. The study showed that: (1) in the box culture experiment, the BER was affected in the order: soil moisture>nitrogen sources>N application rates; (2) a close relationship was observed between the incidence of BER and the ammonium concentration in soil solution. In the soil where nitrification had been delayed, the unnitrified ammonium was likely to suppress calcium absorption and induce BER; (3) in the isolated bed culture experiment, when only nitrate nitrogen was applied, the BER was decreased and the influence of soil moisture on the incidence was also decreased. The application of nitrate N instead of ammonium was effective in decreasing the BER; and (4) a relationship was clearly observed between the incidence of the BER and calcium concentration in petiole sap from the leaf near the trusses, just after blooming. When the calcium concentration went below 200 mg L⁻¹, the BER was more likely to occur. It is possible to predict BER incidence by determining calcium concentration in the petiole sap.

Author H. Poorter and M. Perez-Soba
Title The growth response of plants to elevated CO₂ under non-optimal environmental
Year 2001
Source title Oecologia
Reference 129(1): 1-20

Abstract

Under benign environmental conditions, plant growth is generally stimulated by elevated atmospheric CO₂ concentrations. When environmental conditions become sub- or supra-optimal for growth, changes in the biomass enhancement ratio (BER; total plant biomass at elevated CO₂ divided by plant biomass at the current CO₂ level) may occur. We analysed literature sources that studied CO₂ × environment interactions on the growth of herbaceous species and tree seedlings during the vegetative phase. For each experiment, we calculated the difference in BER for plants that were grown under 'optimal' and 'non-optimal' conditions. Assuming that interactions would be most apparent if the environmental stress strongly diminished growth, we scaled the difference in the BER values by the growth reduction due to the stress factor. In our compilation, we found a large variability in CO₂ × environment interactions between experiments. To test the impact of experimental design, we simulated a range of analyses with a plant-to-plant variation in size common in experimental plant populations, in combination with a number of replicates generally used in CO₂ × environment studies. A similar variation in results was found as in the compilation of real experiments, showing the strong impact of stochasticity. We therefore caution against strong inferences derived from single experiments and suggest rather a reliance on average interactions across a range of experiments. Averaged over the literature data available, low soil nutrient supply or sub-optimal temperatures were found to reduce the proportional growth stimulation of elevated CO₂. In contrast, BER increased when plants were grown at low water supply, albeit relatively modest. Reduced irradiance or high salinity caused BER to increase in some cases and decrease in others, resulting in an average interaction with elevated CO₂ that was not significant. Under high ozone concentrations, the relative growth enhancement by elevated CO₂ was strongly increased, to the extent that high CO₂ even compensated in an absolute way for the harmful effect of ozone on growth. No systematic difference in response was found between herbaceous and woody species for any of the environmental variables considered.

Author Han MS; Noh EW; Yun JK
Title Differentiation of phytoplasmas infecting *Zizyphus jujuba* and *Paulownia coreana*
Year 2001
Source title Plant Pathology Journal
Reference 17(4): 189-193

Abstract

Author Huang RL; Wang WY; Kuo YH; Lin YL
Title Cytotoxic triterpenes from the fruit of Ziziphus jujuba
Year 2001
Source title Chinese Pharmaceutical Journal
Reference 53(4): 179-184

Abstract

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Author Hwang KH; Han YN; Han BH
Title Inhibition of calmodulin-dependent calcium-atpase and phosphodiesterase by vari
Year 2001
Source title Archives of Pharmacal Research
Reference 24(3): 202-206

Abstract

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Author Inayat Ur R; Khan MA; Khan GAKL; Ahmad VU
Title Cyclopeptide alkaloids of Zizyphus species
Year 2001
Source title Journal of the Chemical Society of Pakistan
Reference 23(4): 268-277

Abstract

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Author J. Cao, H. Luo, B. Yu, X. Huang, Z. Sheng and J. Yu
Title Effects of berberine on intracellular free calcium in smooth muscle cells of guinea
Year 2001
Source title Digestion
Reference 64(3): 179-183

Abstract

Objective: To investigate the effects and mechanism of berberine (Ber) on the intracellular free calcium concentration ((Ca²⁺)_i) in the smooth muscle cells of guineapig colon. Methods: The changes of (Ca²⁺)_i were assayed by the biwavelength spectrophotometry with Fura 2-AM in the cell suspension of the smooth muscle cells, which were freshly isolated from guineapig colon. Results: In the resting state, (Ca²⁺)_i in the HEPES-Ringer solution (CaCl₂ 1.5 mmol/litre) was 108±9.4 nmol/litre (n=7). Ber had no significant effects on the resting (Ca²⁺)_i, but markedly inhibited the increase in (Ca²⁺)_i induced by 60 mmol/litre KCl in a concentration-dependent manner. The value of IC₅₀ was 34.09 micro mol/litre. 30 and 100 micro mol/litre Ber also inhibited the elevation of (Ca²⁺)_i evoked by 10 micro mol/litre Ach in a dose-dependent fashion in the presence or absence of extracellular Ca²⁺. In addition, Ber inhibited the elevation of (Ca²⁺)_i stimulated by cyclopiazonic acid (CPA) in a dose-dependent manner. This effect was more potent in the HEPES-Ringer solution (IC₅₀=37.79 micro mol/litre) than Ca²⁺-free medium (IC₅₀=49.70 micro mol/litre). Conclusions: Ber possessed an inhibitory effect on the influx of extracellular Ca²⁺ and Ca²⁺-release from intracellular stores in the smooth muscle cells of colon. That is to say Ber may be a blocker of Ca²⁺ channels.

Author Lal G; Dhaka RS; Pareek CS; Aggarwal VK
Title Effect of nitrogen and phosphorus application in ber (*Ziziphus mauritiana* Lamk.)
Year 2001
Source title Annals of Arid Zone
Reference 40(2): 213-216

Abstract

Author Li Y; Wang Y; Tian YT
Title Tissue culture of *Zizyphus jujuba* cv zanhuang
Year 2001
Source title Plant Physiology Communications
Reference 37(5): 424
Abstract

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Author Li YJ; Li P; Li HJ
Title Quantitative determination of spinosin in seed of *Zizyphus jujuba* var. *spinosa* by r
Year 2001
Source title Chinese Traditional and Herbal Drugs
Reference 32(12): 1079-1080
Abstract

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Author M. C. Stern, D. M. Umbach, C. H. v. Gils, R. M. Lunn and J. A. Taylor
Title DNA repair gene XRCC1 polymorphisms, smoking, and bladder cancer risk.
Year 2001
Source title Cancer Epidemiology, Biomarkers & Prevention
Reference 10(2): 125-131

Abstract

Bladder cancer is the 6th most common cancer in the USA. The main identified risk factor is cigarette smoking, which is estimated to contribute to up to 50% of new cases in men and 20% in women. Besides containing other carcinogens, cigarette smoke is a rich source of reactive oxygen species (ROS) that can induce a variety of DNA damage, some of which is repaired by the base excision repair (BER) pathway. The XRCC1 gene protein plays an important role in BER by serving as a scaffold for other repair enzymes and by recognizing single-strand DNA breaks. Three polymorphisms that induce amino acid changes have been found in codon 194 (exon 6), codon 280 (exon 9), and codon 399 (exon 10) of this gene. We tested whether polymorphisms in XRCC1 were associated with bladder cancer risk and whether this association was modified by cigarette smoking. Therefore, we genotyped for the 3 polymorphisms in 235 bladder cancer cases and 213 controls who had been frequency matched to cases on age, sex, and ethnicity. We found no evidence of an association between the codon 280 variant and bladder cancer risk (odds ratio (OR), 1.2; 95% confidence interval (CI), 0.6-2.6). We found some evidence of a protective effect for subjects that carried at least one copy of the codon 194 variant allele relative to those homozygous for the common allele (OR, 0.59; 95% CI, 0.3-1.0). The combined analysis with smoking history suggested a possible gene-exposure interaction; however, the results were not statistically significant. Similarly, for the codon 399 polymorphism, our data suggested a protective effect of the homozygous variant genotype relative to carriers of either one or 2 copies of the common allele (OR, 0.70; 95% CI, 0.4-1.3), and provided limited evidence, albeit not statistically significant, for a gene-smoking interaction.

Author M. K. Verma, V. P. Sharma, S. K. Saxena and P. C. Jindal
Title Stomatal density as influenced by stionic combinations of ber (*Zizyphus mauritian*
Year 2001
Source title Indian Journal of Horticulture
Reference 58(4): 350-353

Abstract

The effect of stomatal density on different stionic combinations of ber (*Zizyphus mauritiana* [*Zizyphus mauritiana*]) was studied. The plant samples comprising rootstock-scion combination of rootstocks *Z. nummularia*, *Z. mauritiana* ecotype-291 and *Z. mauritiana* ecotype-Assam-Gauhati and commercial cultivars Banarasi Karaka, Ponda and Gola were used. There were significant differences in stomatal density, internodal length and plant growth in all the stionic combinations. The minimum stomatal density, internodal length and plant height were recorded in Gola budded on *Z. nummularia* and was found the most dwarfing combination. Whereas, stionic combination of Ponda budded on rootstock *Z. mauritiana* ecotype-Assam-Gauhati was found the most vigorous where the maximum stomatal density, internodal length and plant height were observed. The rootstock *Z. mauritiana* ecotype-291 was found most compatible and moderate in plant growth, stomatal density and internodal length thereby giving moderate vigour to trees.

Author M. Mani, C. Gopalakrishnan and A. Krishnamoorthy
Title Natural enemies of ber hairy caterpillar *Thiacidas postica* Walker (Lepidoptera: N
Year 2001
Source title Entomon
Reference 26(3/4): 313-315

Abstract

The hairy caterpillar *T. postica* (Lepidoptera: Noctuidae) on ber [*Zizyphus mauritiana*] was found attacked by four parasitoids, namely, *Exorista* sp., *Chaetexorista* sp., *Charops obtusus* and *Apanteles creatonoti*, and one nuclear polyhedrosis virus in Karnataka, India, during 1999. The total mortality due to these biological control agents ranged from 14.9 to 26.8% during August-December 1999. *Exorista* sp. and *Chaetexorista* sp. appeared to be new records on *T. postica*.

Author M. Manikkam, B. Bao, C. S. Rosenfeld, X. Yuan, B. E. Salfen, M. D. Calder, R. S
Title Expression of the bovine oestrogen receptor- beta (bER beta) messenger ribonucleic acid
Year 2001
Source title Animal Reproduction Science
Reference 67(3/4): 159-169

Abstract

In a previous study, the ER beta cDNA protein-coding region was utilized to clone bovine ER beta . The objectives in this study were to examine (1) ER beta mRNA expression in ovarian follicles throughout the bovine first follicular wave, and (2) effect of LH infusion into cows on bER beta mRNA expression during the second follicular wave. In experiment 1, heifers (4-5 per time point) were ovariectomized at 12, 24, 36, 48, 60, 72, 84, 96, 144, or 216 h after emergence of the first follicular wave after oestrus. In experiment 2, saline or LH was pulsed hourly (computer-controlled syringe pump) into cows (n=31; 5-6 per treatment) at wave emergence for 2 or 4 days: wave 1-saline (W1S), wave 2-saline (W2S), or wave 2-LH (25 micro g/h; W2LH). Ovaries were removed on day 2 or day 4 after wave emergence. Follicles, 2-19 mm in size, were dissected, frozen, and stored at -80 degrees C for in situ hybridization with two bER beta cRNA probes. Expression of bER beta mRNA was localized in granulosa cells of healthy follicles. In experiment 1, bER beta mRNA expression did not change with time points of the wave showing no association of bER beta mRNA expression with follicular selection and dominance. However, bER beta mRNA expression decreased with increase in size of all follicles. Expression of bER beta mRNA was greater in very small follicles (2-4 mm) than in large (<more or =>9 mm) follicles. In experiment 2, expression of bER beta mRNA in follicles did not differ either between W1S and W2S or between W2S and W2LH. In summary, bER beta mRNA expression decreased with increasing follicular size. However, neither stage of the wave (selection or dominance), nor pulsatile infusion of LH influenced bER beta mRNA expression.

Author M. Sandoval-Villa, E. A. Guertal and C. W. Wood
Title Greenhouse tomato response to low ammonium-nitrogen concentrations and duration
Year 2001
Source title Journal of Plant Nutrition
Reference 24(11): 1787-1798

Abstract

High ammonium-nitrogen (NH₄-N) concentration in solution may adversely affect greenhouse tomato (*Lycopersicon esculentum* cv. Max) yield, but it has been reported that small NH₄-N fractions improve yield and may increase vegetative growth and nutrient element uptake. The objective of this study was to determine the tomato yield response to 0 : 100, 10 : 90, 20 : 80, 30 : 70, and 40 : 60 NH₄-N : NO₃-N ratios supplied at the vegetative, vegetative plus flowering, flowering plus fruiting, and fruiting stages, and over the entire plant life cycle. Two experiments under greenhouse conditions were conducted with ambient light in which light intensity was 2667 and 5030 W h⁻¹ m⁻² for the winter (1996-97) and the spring (1997) experiments, respectively. In both experiments, neither the length of NH₄-N supply nor the NH₄-N concentration in solution affected tomato yield. Longer NH₄-N supply increased the amount of fruit with blossom-end rot (BER) in the winter (1996-1997) experiment, but BER incidence was unaffected in the spring (1997) experiment by duration of NH₄-N supply. The number of fruit with BER was greatly increased by higher NH₄-N concentrations in solution in the spring (1997) experiment. Plant height was not affected by NH₄-N concentration in either the winter or spring experiments, and neither was fruit firmness measured for fruit at the mature green stage. Fresh and dry weights were unaffected by NH₄-N concentration or length of supply, but in the spring (1997) experiment, fresh weight of leaves, as well as their proportion to the weight of the aerial parts, were affected by both NH₄-N concentration and length of supply. High concentrations of NH₄-N and long periods of NH₄-N supply increased calcium (Ca) concentration in leaf tissue, but only for the spring (1997) experiment was there a significant relationship between Ca concentration in leaves and BER incidence.

Author M. T. Reddy, I. Syed and Y. N. Reddy
Title Performance of radish (*Raphanus sativus* L.) under graded levels of nitrogen in be
Year 2001
Source title Journal of Research ANGRAU
Reference 28(4): 19-24

Abstract

Radish cv. Pusa Chetki was intercropped with 7-year-old ber (*Ziziphus mauritiana*) cv. Gola, and also grown as a sole crop, under different levels of N (40, 80 and 120 kg/ha) in field experiments conducted in Hyderabad, Andhra Pradesh, India, during the ber cropping seasons of 1996-97. In intercropping systems, radish was sown in strips with progressive distances of 1.5-2.8 (D1) and 2.8-4.0 m (D2) from ber trees. Results showed that the number of leaves, root length, girth, dry matter and total soluble solids of radish decreased when radish was intercropped with ber at all N levels. However, intercropping with ber increased the height, shoot yield and chlorophyll content of radish. The growth and yield attributes of radish increased with increasing N levels. Radish root yield in D1 and D2 intercrop strips was reduced by 31 and 12%, respectively. Stomatal diffusive resistance and relative humidity were higher in D1 compared to D2 and the sole crop. N at 120 kg/ha was optimum for radish growth under ber intercropping conditions, and this N rate resulted in the highest income e q u i v a l e n t r a t i o o f 1 . 7 2 .

Author Martinez-Madrid MC; Martinez-Zamora JC; Romojaro F
Title Modified atmosphere packaging preserves sensorial and nutritional quality of Zizy
Year 2001
Source title Acta Horticulturae
Reference 2: 613-614

Abstract

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Author Outlaw WH; Zhang S; Tschinkel WR; Smith BG; Outlaw EC; Outlaw NN
Title Chemical and biological attributes of the nectar of the jujube (*Ziziphus jujuba* Mil
Year 2001
Source title American Bee Journal
Reference 141(1): 61-62

Abstract

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Author P. F. Martinez and D. Roca
Title Regulation of air humidity and effects on mineral levels and blossom-end rot incid
Year 2001
Source title Acta Horticulturae
Reference 559, 407-412. Price(123 EURO (2 volumes)

Abstract

Blossom-end rot (BER) is a physiological disorder common in tomato and pepper fruits, that is related to poor Ca translocation, connected to environmental conditions occurring in Mediterranean greenhouses in spring and with a higher incidence in soilless culture. A study was carried out to observe the effects of air humidity on the nutrients translocation, Ca, K, Mg, to the pepper cv. Atol fruits, in growth chamber and hydroponic culture conditions. Treatments included 85 and 90% air humidity during day and night respectively, (humid treatment), compared to a control representing standard spring conditions in Mediterranean coast greenhouses with 55% during the day and 90% during the night, both cases with identical temperature levels, with a day maximum of 28 degrees C and minimum of 18 degrees C in the night. The calcium levels were significantly higher in the fruits developed under the humid conditions, with 40% more than the control in 25 to 35 days old fruits and 54.3% more in 35 to 45 days old fruits, both levels referred to the distal half part of the berry. The age of 25 to 35 days appears to be the stage with lowest Ca contents in fruit and consequently would be the most risky stage for BER. Similarly, the K levels were also higher in the humid environment fruits whereas the Mg contents was quite stable in both treatments. The Ca contents in the distal half part of BER affected fruits was 56.3% lower than in the normal fruits. The higher Ca level in the distal part of the fruits could be related to the distribution of vascular bundles in the berries. There was a remarkable increase in the number of vascular bundles in fruits developed under humid conditions compared to the drier control, with 18.9% increase in the fruit basal half and 27.8% increase in the distal half part. Also a reduction in the number of bundles was observed in drier conditions compared to the same control in a previous experiment. Likewise, leaf stomatal conductance in the humid environment was 5 to 8 times higher than in the control, with leaf to air vapour pressure differences between both environments of 0.92 to 1.78 kPa which resulted in leaf transpiration rates, 1.5 to 2.5 times higher in the humid conditions due to stomatal closure in the control plants.

Author S. J. Tabatabaei, P. Hadley and P. J. Gregory
Title Fruit growth and Ca and K accumulation in the fruits of tomato grown under a spe
Year 2001
Source title Plant nutrition: food security and sustainability of agro-ecosystems through basic
Reference W. J. Horst, M. K. Schenk, A. Burkert, N. Claassen, H. Flessa, W. B. Frommer, H

Abstract

The yield, fruit quality, and uptake and distribution of Ca and K were examined in plum tomato (*Lycopersicon esculentum*) cv. DRK 2003 grown under an infrared reflective filter designed to reduce temperature in glasshouses. Tomato plants were grown in a hydroponic system in two identical compartments, one covered with an infrared reflective filter and another without the filter. Two weeks after anthesis, fruits in the unfiltered compartment were 16% larger than those in the filtered compartment, but Ca concentration was 12% less. The accelerated fruit growth caused by high temperature in the unfiltered compartment reduced Ca concentration in fruits during the early stages of growth and, as a result, induced blossom end rot (BER). In the unfiltered compartment, 35% of fruits had BER, compared to none in the filtered compartment. Mature fruits in the unfiltered compartment had a K concentration that was 15% greater than that of fruits in the filtered compartment. High temperature appeared to reduce Ca accumulation, but increased K concentration, in fruits. To control BER, rapid fruit growth caused by high temperature should be avoided.

Author S. K. Sharma, J. K. Dang and R. Datta
Title Chemical control of powdery mildew of ber (*Zizyphus mauritiana* L.).
Year 2001
Source title Annals of Biology
Reference 17(2): 203-206

Abstract

Studies were undertaken in Haryana, India from 1994 to 1999 to evaluate different fungicides (Karathane 50 WP [dinocap], Bavistin 50 [carbendazim], Sulfex [sulfur], Bayleton [triadimefon], Baycor [bitertanol] and Topsin M [thiophanate-methyl]) and develop a spray schedule for the control of powdery mildew (*Oidium erysiphoides* f. *ziziphus*) of ber (*Zizyphus mauritiana* [*Zizyphus mauritiana*] cv. Umran). Among the fungicides tested, 0.1% Bayleton recorded the highest disease control (90.5%), followed by Karathane (85.9%). The cost of treatment with Bayleton was Rs 40 per spray, while treatment with Karathane was Rs 22 per spray. Based on the results of long-term experiments under field conditions, it is recommended that powdery mildew be controlled by two foliar applications: either Bayleton or Karathane at 0.1%. The first spray must usually be done in the last week of October just at the appearance of the disease.

Author S. Omveer, K. K. Misra and R. L. Lal
Title Studies on the fruit quality of some important cultivars of Ber (*Zizyphus mauritia*)
Year 2001
Source title Progressive Horticulture
Reference 33(2): 151-156

Abstract

Experiments were conducted in Pantnagar, Uttaranchal, India to investigate the fruit quality of 24 ber (*Zizyphus mauritiana*) cultivars under tarai conditions. Among the cultivars, Noki showed the highest fruit size. Cultivars Umran showed the highest fruit weight, fruit volume and total soluble solids content:acid ratio. Cultivars Kala Gola, followed by ZG3 showed the highest ascorbic acid content, while the lowest was observed in Rohtaki Gola, followed by Nazuk. The maximum acidity was observed in cv. Chinese, followed by Sanaur 3, while the lowest was in ZG 3, followed by Umran. Kala Gola showed the highest ascorbic acid content.

Author S. Rajpal, N. R. Godara, S. Rajbir and S. S. Dahiya
Title Responses of foliar application of growth regulators and nutrients in ber (*Zizyphu*)
Year 2001
Source title Haryana Journal of Horticultural Sciences
Reference 30(3/4): 161-164

Abstract

A field experiment was conducted at Hisar, Haryana, India, in 1998 and 1999 to study the effects of urea (1.0, 2.0, and 3.0%), zinc sulfate (0.25, 0.50, and 1.00%), potassium sulfate (0.5, 1.00, and 1.5%), borax (0.25, 0.50, and 1.00%), NAA (10.0, 20.0, and 40.0 ppm) and ascorbic acid (10.0, 25.0, and 50.0 ppm) spraying (at full bloom stage, 40 days after planting, and 80 days after second spray) on 16-year-old *Zizyphus mauritiana* [*Zizyphus mauritiana*] cv. Umran. NAA (10 ppm) increased fruit set and yield, followed by urea (2%). NAA (20 ppm) was most effective in reducing fruit drop, followed by urea (2%). The maximum fruit weight, fruit size (length and breadth), pulp percent and pulp/stone ratio were obtained with NAA (10 ppm), which was on a par with NAA (20 ppm), borax (1.0%), and NAA (40 ppm). Stone weight and size (length and breadth) were not significantly affected by any of the treatment.

Author Shahat AA; Pieters L; Apers S; Nazeif NM; Abdel-Azim NS; Berghe DV; Vlietin
Title Chemical and biological investigations on Zizyphus spina-christi L
Year 2001
Source title Phytotherapy Research
Reference 15(7): 593-597
Abstract -

Author Sharma SK; Dang JK; Ram D
Title Chemical control of powdery mildew of ber (Zizyphus mauritiana Lam.)
Year 2001
Source title Annals of Biology
Reference 17(2): 203-206
Abstract -

Author Shobha D; Bharati P; Naik RK; Chimmad B
Title Preservation of ber fruit using dehydration
Year 2001
Source title Karnataka Journal of Agricultural Sciences
Reference 14(2): 538-540
Abstract -

Author Shobha D; Bharati P; Naik RK; Patil SS
Title Morphological and physico-chemical characters of ber varieties
Year 2001
Source title Karnataka Journal of Agricultural Sciences
Reference 14(2): 541-544
Abstract

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Author Siddiqui S; Sharma RK; Godara RK
Title Uv-irradiation improves the shelf life of ber (*Zizyphus mauritiana* Lamk.) fruits at
Year 2001
Source title Haryana Journal of Horticultural Sciences
Reference 30(1/2): 74-75
Abstract

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Author Singh DK
Title Effect of surfactants on efficacy of planofix in `gola' indian jujube (*Zizyphus maur*
Year 2001
Source title Indian Journal of Agricultural Sciences
Reference 71(10): 652-654
Abstract

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Author Singh R; Godara NR; Ahlawat VP; Dahiya SS
Title Mineral composition of ber (Zizyphus mauritiana Lamk.) leaves as affected by fol
Year 2001
Source title Haryana Journal of Horticultural Sciences
Reference 30(1/2): 10-11
Abstract -

Author Singh R; Godara NR; Singh RB; Dahiya SS
Title Responses of foliar application of growth regulators and nutritens in ber (Zizyphu
Year 2001
Source title Haryana Journal of Horticultural Sciences
Reference 30(3/4): 161-164
Abstract -

Author Singh S; Singhrot RS; Bhatia SK
Title Effect of seed treatment on germination, growth and budding success in ber root st
Year 2001
Source title Haryana Journal of Horticultural Sciences
Reference 30(3/4): 156-158
Abstract -

Author Singh S; Singhrot RS; Bhatia SK
Title Effect of transplanting treatment on success of ber (*Zizyphus mauritiana* Lamk.) b
Year 2001
Source title Haryana Journal of Horticultural Sciences
Reference 30(3/4): 159-160

Abstract

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Author Srimathi P; Karivaradaraaju TV; Malarkodi K
Title Storage studies in ber [*Zizyphus mauritiana* Lamk]
Year 2001
Source title Advances in Plant Sciences
Reference 14(2): 405

Abstract

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Author T. Pradeep and N. D. Jambhale
Title Possible role of waxes in powdery mildew resistance in *Zizyphus*.
Year 2001
Source title Indian Phytopathology
Reference 54(1): 29-31

Abstract

Total epicuticular wax content in immature fruits of ten ber (*Zizyphus mauritiana*) genotypes and mature leaves of 3 genotypes varying in their ploidy levels and reaction to powdery mildew caused by *Oidium erysiphoides* f. *zizyphi* was investigated. Quantitative variations were observed, the wax content being high in diploid resistant genotypes except Guli than the tetraploid susceptible ones. Similarly, Seedless, an octaploid immune genotype had higher leaf waxes than Darakhi-1 (resistant) and Kadaka (susceptible). However, its fruits had lower wax content as that of Illaichi, another octaploid susceptible genotype. Thus, the pattern of quantitative variation observed for wax content between the resistant and susceptible genotypes of ber suggest that wax may not be the only factor imparting resistance to powdery mildew disease.

Author Tang Zx
Title Occurrence and control of *Cnidocampa flavescens* in *Zizyphus jujuba*
Year 2001
Source title Journal of Zhejiang Forestry Science and Technology
Reference 21(4): 46-47
Abstract -

Author Thomas D; Kulwal LV
Title Preparation of jam from ber fruits (*Zizyphus mauritiana* L.)
Year 2001
Source title Advances in Plant Sciences
Reference 14(1): 225-228
Abstract -

Author Trag AR; Ali ST Mahmooduzzafar; Siddiqi TO; Iqbal M
Title Foliar responses of *Zizyphus mauritiana* L. to emissions of a coal-fired thermal po
Year 2001
Source title Advances in Plant Sciences
Reference 14(1): 229-236
Abstract -

Author Tripathi M; Pandey MB; Jha RN; Pandey VB; Tripathi PN; Singh JP
Title Cyclopeptide alkaloids from Zizyphus jujuba
Year 2001
Source title Fitoterapia
Reference 72(5): 507-510

Abstract

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Author Weekley CW; Race T
Title The breeding system of Zizyphus celata Judd and D.W. Hall (Rhamnaceae), a rare
Year 2001
Source title Biological Conservation
Reference 100(2): 207-213

Abstract

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Author Z. Feleke and Y. Sakakibara
Title Nitrate and pesticide removal by a combined bioelectrochemical/adsorption proce
Year 2001
Source title Water Science and Technology
Reference 43(11): 25-33

Abstract

Biological denitrification and trace pesticide removal in a combined biofilm-electrode reactor/adsorption process was investigated. In long-term (more than 260 days) experiments, influent and effluent concentrations of nitrate, nitrite, isoprothiolane and gas composition were measured at different electric current and pesticide loading conditions. Experimental results showed that complete and stable denitrification was achieved in BER without accumulation of nitrite and nitrous oxide. Isoprothiolane (IPT) was removed by adsorption onto either granular activated carbon or silicone resin. Removal efficiency of IPT exceeding 97% was achieved and effluent concentration was below the guideline value (40 micro g/L). Theoretically predicted effluent concentrations were in good agreement with the observed results. From these results, it is concluded that the combined process is applicable to treat nitrate and pesticide contaminated drinking water. Moreover, from comparison with former studies, different possible options to further enhance the decomposition of p e s t i c i d e w e r e s u g g e s t e d .

Author Z. Kavitha and P. Savithri
Title Biology and morphometrics of white hairy caterpillar, *Thiacidas postica* Walker (
Year 2001
Source title Journal of Applied Zoological Researches
Reference 12(2/3): 111-115

Abstract

The caterpillars of white hairy caterpillar, *T. postica* congregate on the ventral surface of leaf and scrape the chlorophyll content of ber (*Zizyphus jujuba*) leaves, resulting in skeletonization of leaves. The mean durations of egg, larval, prepupal and pupal stages of white hairy caterpillar lasted for 12, 20.6, 13.5, 13.7 days, respectively. The total life cycle was completed in 63.5 days.

Author Z. Kavitha and P. Savithri
Title Seasonal abundance of leafhopper, *Qadria pakistanika* Ahmed and lacebug, *Mono*
Year 2001
Source title Journal of Applied Zoological Researches
Reference 12(2/3): 99-102

Abstract

The seasonal abundance of the leafhopper (*Q. pakistanika*) and lacebug (*Monosteria* sp.) on ber (*Zizyphus jujuba*) was investigated to determine the population fluctuations and favourable periods for the activity of pests in relation to weather parameters in Tirupati, Andhra Pradesh, India, during July 1999-February 2000. Nymphs and adults of *Q. pakistanika* mostly infested the lower surface of tender leaves and sucked the sap resulting in yellowing of leaves. The lacebug, *Monosteria* sp. is a tiny light brownish bug. The nymphs and adults of lace bug concentrated on lower surface of leaf and sucked the sap. As a result the leaf turned bronze on its upper surface. The leafhoppers occurred from 3rd week of August to February with peak activity 3rd week of October. The lacebug was noticed from July to February with peak population in 4th week of October.

Author Agarwal, S. K., S. S. Singh, S. Verma and S. Kumar
Title Two new aliphatic compounds from the leaves of *Zizyphus mauritiana*
Year 2000
Source title Indian Journal of Chemistry Section B
Reference 39(11): 872-874

Abstract

Author Arndt, S. K., W. Wanek, S. C. Clifford and M. Popp
Title Contrasting adaptations to drought stress in field-grown *Ziziphus mauritiana* and
Year 2000
Source title Australian Journal of Plant Physiology
Reference 27(11): 985-996
Abstract

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Author Bhargava, B. S., L. R. Varalakshmi and G. B. Raturi
Title Nutrient uptake by some cultivars of ber (*Zizyphus mauriana* Lamk.) fruits
Year 2000
Source title Haryana Journal of Horticultural Sciences
Reference 29(1/2): 24-26
Abstract

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Author Cheng, G., Y. Bai, Y. Zhao, J. Tao, Y. Liu, G. Tu, L. Ma, N. Liao and X. Xu
Title Flavonoids from *Ziziphus jujuba* Mill var. *spinosa*
Year 2000
Source title Tetrahedron
Reference 56(45): 8915-8920
Abstract

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Author Cheng, Y. f., L. z. An, T. l. Pu and X. l. Wang
Title Induction of callus and plant regeneration of *Zizyphus jujuba* Mill
Year 2000
Source title Acta Botanica Boreali Occidentalia Sinica
Reference 20(3): 364-369
Abstract

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Author Dhaka, R. S., G. Lal, M. S. Fageria and M. Agrawal
Title Studies on zero energy cool chamber for storage of ber (*Zizyphus mauritiana* Lam
Year 2000
Source title Annals of Arid Zone
Reference 39(4): 439-442
Abstract

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Author Guissou T; Ba AM; Guinko S; Plenchette C; Duponnois R
Title Response of mycorrhizal plants of jujube (*Zizyphus mauritiana* Lam.) grown in so
Year 2000
Source title Fruits (Paris)
Reference 55(3): 187-194
Abstract

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Author Gupta NK; Banafar RNS; Pathak AC
Title Nutritional status of some grafted ber (*Zizyphus mauritiana* Lam.) cultivars
Year 2000
Source title Advances in Plant Sciences
Reference 13(2): 599-602
Abstract -

Author Gupta NK; Mehta AK
Title Genetic variability and association of component characters for fruit yield in ber (*Zizyphus mauritiana* Lam.)
Year 2000
Source title Advances in Plant Sciences
Reference 13(1): 75-78
Abstract -

Author Hu GB; Zheng QF; Liu CM
Title Tissue culture and plantlet regeneration of *Zizyphus mauritiana*
Year 2000
Source title Plant Physiology Communications
Reference 36(5): 435
Abstract -

Author Huang YI; Lu SS; Yu CC
Title The study on the physical property's indices of grading for Indian jujube
Year 2000
Source title Journal of Agriculture and Forestry
Reference 49(4): 47-62
Abstract -

Author Jagadeesh SG; Krupadanam GLD; Srimannarayana G
Title A new triterpenoid from Zizyphus xylopyrus stem wood
Year 2000
Source title Indian Journal of Chemistry Section B
Reference 39(5): 396-398
Abstract -

Author Kale VS; Dod VN; Adpawar RM; Bharad SG
Title Effect of plant growth regulators on fruit characters and quality of ber (Zizyphus
Year 2000
Source title Crop Research (Hisar)
Reference 20(2): 327-333
Abstract -

Author Kayser O; Arndt SK
Title Antimicrobial activity of some Ziziphus species used in traditional medicine
Year 2000
Source title Pharmaceutical and Pharmacological Letters
Reference 10(1): 38-40
Abstract -

Author Kudachikar VB; Ramana KVR; Eipeson WE
Title Pre-and post-harvest factors influencing the shelf life of ber (*Zizyphus mauritiana*)
Year 2000
Source title Indian Food Packer
Reference 54(1): 81-90
Abstract -

Author Kumar A; Solanki KR; Singh R
Title Effect of rainfall on incidence of powdery mildew in ber
Year 2000
Source title Annals of Arid Zone
Reference 39(1): 89-92
Abstract -

Author Martinez-Madrid MC; Martinez-Zamora JC; Romojaro F
Title Modified atmosphere packaging preserves sensorial and nutritional quality of Zizy
Year 2000
Source title International Conference on Postharvest Science, Jerusalem
Reference Ishs, 613-614 pp
Abstract

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Author Mathur N; Vyas A
Title Influence of arbuscular mycorrhizae on biomass production, nutrient uptake and p
Year 2000
Source title Journal of Arid Environments
Reference 45(3): 191-196
Abstract

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Author Metallana Gonzalez MC; Diaz Delgado A; Torija Isasa ME
Title Valor nutritivo de las azufaifas (*Zizyphus jujuba* Mill)
Year 2000
Source title Revista Latinoamericana De Quimica
Reference 28 Supp, 132
Abstract

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Author Mishra YD; Sushil SN; Chakrabarty PK; Bhattacharya A; Kumar S
Title Estimating stick lac productivity of lac on ber, *Zizyphus mauritiana* Lamk through
Year 2000
Source title Journal of Entomological Research
Reference 24(4): 343-348
Abstract

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Author Mishra YD; Sushil SN; Kumar S; Bhattacharaya A
Title Variability in lac productivity and related attributes of *Kerria* spp. (homoptera: Ta
Year 2000
Source title Journal of Entomological Research
Reference 24(1): 19-26
Abstract

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Author Nallathambi P; Ummamaheswari C; Vashishtha BB; Nath V
Title Fruit rot (*A. alternata*) and sources of resistance in ber germplasm under arid cond
Year 2000
Source title Annals of Arid Zone
Reference 39(4): 477-478
Abstract

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Author Nayak G; Sen SK
Title Standardization of budding methods of ber (*Zizyphus mauritiana* Lamk)
Year 2000
Source title Environment and Ecology
Reference 18(1): 241-242
Abstract -

Author Panday SC; Samra JS; Singh CP
Title Chloride tolerance of ber (*Zizyphus mauritiana* Lamk.) in presence of nitrate ion
Year 2000
Source title Haryana Journal of Horticultural Sciences
Reference 29(1/2): 30-31
Abstract -

Author Peng WH; Hsieh MT; Lee YS; Lin YC; Liao J
Title Anxiolytic effect of seed of *Zizyphus jujuba* in mouse models of anxiety
Year 2000
Source title Journal of Ethnopharmacology
Reference 72(3): 435 - 441
Abstract -

Author Praveen J; Patil PB
Title Studies on biochemical changes in ber cultivars grown under semi-arid conditions
Year 2000
Source title Karnataka Journal of Agricultural Sciences
Reference 13(1): 107-111
Abstract -

Author Reddy MT; Ismail S; Reddy YN
Title Performance of radish (*Raphanus sativus* L.) in relation to tree alley orientation in
Year 2000
Source title Crop Research (Hisar)
Reference 19(1): 59-62
Abstract -

Author Ren D; Li F; Qu Y
Title Several physiological factors caused vitrification in *Zizyphus jujuba* and its curing
Year 2000
Source title Plant Physiology Communications
Reference 36(1): 21-22
Abstract -

Author Schuhly W; Heilmann J; Calis I; Sticher O
Title Novel triterpene saponins from *Zizyphus joazeiro*
Year 2000
Source title Helvetica Chimica Acta
Reference 83(7): 1509-1516
Abstract

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Author Sharma RK; Gupta OP; Siddiqui S
Title Pigmentation changes during ripening of ber (*Zizyphus mauritiana* Lamk.) fruits o
Year 2000
Source title Haryana Journal of Horticultural Sciences
Reference 29(3/4): 201
Abstract

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Author Sharma RK; Siddiqui S; Gupta OP
Title Changes in ethylene evolution and respiration rates in ripening ber (*Zizyphus mau*
Year 2000
Source title Haryana Journal of Horticultural Sciences
Reference 29(3/4): 195
Abstract

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Author Shukla L; Singh NK; Rao PB
Title Isolation and per amplification of genomic DNA from Ziziphus nummularia Mill
Year 2000
Source title Physiology and Molecular Biology of Plants
Reference 6(1): 75-80
Abstract -

Author Singh DK
Title Effect of paclobutrazol on yield and quality of different cultivars of ber (Zizyphus
Year 2000
Source title Indian Journal of Agricultural Sciences
Reference 70(1): 20-22
Abstract -

Author Singh YP; Sumbali G
Title Ascorbic acid status and aflatoxin production in ripe fruits of jujube infected with
Year 2000
Source title Indian Phytopathology
Reference 53(1): 38-41
Abstract -

Author Singh YP; Sumbali G
Title Natural incidence of toxigenic *Aspergillus flavus* strains on the surface of pre-har
Year 2000
Source title Indian Phytopathology
Reference 53(4): 404-406
Abstract -

Author Verma RK
Title Diversity of ground flora, soil microflora and fauna under *Zizyphus mauritiana* an
Year 2000
Source title Environment and Ecology
Reference 18(2): 426-433
Abstract -

Author Visalakshmi V; Rao PA; Krishnayya PV
Title Efficacy of chitin inhibitor and *Bacillus thuringiensis* Ber used either alone or in c
Year 2000
Source title Journal of Entomological Research
Reference 24(4): 369-374
Abstract -

Author Xingang L; Jinxia T; Hongzhe W
Title Ecological adaptability of Ziziphus jujuba Mill. in north Shaanxi
Year 2000
Source title Journal of the Northwest Forestry University
Reference 15(2): 13-18
Abstract -

Author Yu Y; Wang X; Wang Y
Title A comparative study on determination of several metallic elements in leaf of Zizip
Year 2000
Source title Guangdong Weiliang Yuansu Kexue
Reference 7(1): 44-46
Abstract -

Author Aganga, A. A. and K. W. Mosase
Title Tannin content, nutritive value and dry matter digestibility of Lonchocarpus capas
Year 1999
Source title Polyphenolics in tropical ruminant production; Tannins Analysis and biological ef
Reference Elsevier, 107-113 pp
Abstract -

Author Arantes, A. M. V. T. and A. D. C. B. Correia
Title Diversidade de fungos associada a parasitologia Ziziphus (Lucas)(Hemiptera: Diasp
Year 1999
Source title Anais- Sociedade Entomologica Do Brasil
Reference 28(3): 477-484
Abstract

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Author Bhardwaj, R., O. P. Gupta and S. Siddiqui
Title Effect of preharvest treatments of various fungicides on shelf-life of ber (Zizyphus
Year 1999
Source title Haryana Journal of Horticultural Sciences
Reference 28(1/2): 52-54
Abstract

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Author Dashad, S. S. and O. P. Chaudhary Rakesh
Title Studies on the incidence of ber fruitfly (Carpomyia vesuviana Costa) in south-wes
Year 1999
Source title Crop Research (Hisar)
Reference 18(1)@ 115-118
Abstract

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Author Feng L
Title A study on the integrated culture technics in good quality and high output of jujube
Year 1999
Source title Ningxia Journal of Agriculture and Forestry Science and Technology
Reference (5): 39-45
Abstract

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Author Goel A; Siddiqui S
Title Changes in enzyme activities and physico-chemical characteristics of ber (*Zizyph*
Year 1999
Source title Indian Journal of Agricultural Research
Reference 33(3): 209-213
Abstract

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Author Gueye M; Samb PI; Nongonierma A
Title Effect of goat digestive tractus on the seed germination of *Zizyphus mauritiana* La
Year 1999
Source title Tropicultura
Reference 16/17(3): 109-112
Abstract

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Author Gusacova SD; Sagdullaev SS; Aripov KN; Basher KH; Kurkcuoglu M; Demirci B
Title Isomers of palmitoleic acid in lipids and volatile substances from the fruits of Zizi
Year 1999
Source title Chemistry of Natural Compounds C/C of Khimiia Prirodnykh Soedinenii
Reference 35(4): 401-403
Abstract

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Author Kale VS; Kale PB; Adpawar RW
Title Effect of plant growth regulators on fruit yield and quality of ber cv. Umran (Zizip
Year 1999
Source title Annals of Plant Physiology
Reference 13(1): 69-72
Abstract

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Author Kamil M; Jayaraj AF; Ahmed F; Gunasekhar C; Samuel S; Habibullah M; Chan
Title Pharmacocognistic protocols for standardization of Zizyphus spinachristi
Year 1999
Source title Journal of Pharmacy and Pharmacology
Reference 51 Supp, 226
Abstract

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Author Kurian RM; Reddy YN
Title Pattern of shoot growth in *Zizyphus mauritiana* and *Z. oenopia*
Year 1999
Source title Annals of Botany
Reference 84(3): 289-296
Abstract -

Author Liu M
Title Advances in taxonomy study on the genus *Zizyphus*
Year 1999
Source title Acta Horticulturae Sinica
Reference 26(5): 302-308
Abstract -

Author Mathur N; Vyas A
Title Improved biomass production, nutrient uptake and establishment of in vitro raised
Year 1999
Source title Journal of Plant Physiology
Reference 155(1): 129-132
Abstract -

Author Matsuda H; Murakami T; Ikebata A; Yamahara J; Yoshikawa M
Title Bioactive saponins and glycosides. Xiv. Structure elucidation and immunological
Year 1999
Source title Chemical and Pharmaceutical Bulletin
Reference 47(12): 1744-1748
Abstract

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Author Mukherjee S; Paliwal R; Gupta NK
Title Effect of pre-harvest application of some fungicides on the shelf life of ber (Zizip
Year 1999
Source title South Indian Horticulture
Reference 47(1/6): 172-173
Abstract

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Author Munoz SE; Piegari M; Guzman CA; Eynard AR
Title Differential effects of dietary oenothera, Zizyphus mistol, and corn oils, and essen
Year 1999
Source title Nutrition
Reference 15(3): 208-212
Abstract

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Author Nanthakumar S; Balakrishanan K; Azhakiamanavalan RS
Title Studies on the effect of severity of pruning on floral characteristics and yield in be
Year 1999
Source title South Indian Horticulture
Reference 47(1/6): 17-20
Abstract -

Author Ojasvi PR; Goyal RK; Gupta JP
Title The micro-catchment water harvesting technique for the plantation of jujube (Zizy
Year 1999
Source title Agricultural Water Management
Reference 41(3): 139-147
Abstract -

Author Pawar ND; Patil HN; Kumbhar BB
Title Marketing of ber in Maharashtra state
Year 1999
Source title Agricultural Marketing
Reference 42(2): 20-27
Abstract -

Author Qiu FT; Wu F
Title Tissue culture and plantlet regeneration of *Zizyphus jujuba*
Year 1999
Source title Plant Physiology Communications
Reference 35(2): 129
Abstract

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Author Reddy MT; Ismail S
Title Performance of okra (*Abelmoschus esculentus* L. Moench) as influenced by tree-a
Year 1999
Source title Annals of Plant Physiology
Reference 13(1): 27-30
Abstract

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Author Reddy MT; Ismail S; Reddy YN
Title Shade and allelopathic effects of ber on growth, productivity and quality of radish
Year 1999
Source title South Indian Horticulture
Reference 47(1/6): 77-80
Abstract

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Author Sataraddi AR; Kachapur MR; Anahosur KH
Title Histopathological changes in ber infected by *Oidium erysiphoides* f. Sp. Ziziphi Y
Year 1999
Source title Indian Journal of Plant Pathology
Reference 17(1/2): 46-47
Abstract -

Author Schuhly W; Heilmann J; Calis I; Sticher O
Title New triterpenoids with antibacterial activity from *Zizyphus joazeiro*
Year 1999
Source title Planta Medica
Reference 65(8): 740-743
Abstract -

Author Siddiqui S; Srivastava A; Sharma RK
Title Shelf life of ber (*Zizyphus mauritiana* Lamk.) fruit as affected by hot water treatment
Year 1999
Source title Haryana Journal of Horticultural Sciences
Reference 28(3/4): 179-181
Abstract -

Author Singh RS; Prasad RN; Gupta JP; Vashistha BB; Ramakrishna YS
Title Thermal time requirement for fruit development and maturity of jujube (*Zizyphus*)
Year 1999
Source title Annals of Arid Zone
Reference 38(2): 161-166
Abstract -

Author Singh S; Bhatia SK; Singhrot RS
Title Effect of different cultural operations on the growth and bud take of ber (*Zizyphus*)
Year 1999
Source title Haryana Journal of Horticultural Sciences
Reference 28(3/4): 191
Abstract -

Author Waskar DP; Garande VK
Title Standardization of a method of juice extraction from ber fruit
Year 1999
Source title Journal of Food Science and Technology
Reference 36(6): 540-541
Abstract -

Author Yan-ling Y; Xue-zhao W; Yun-ge W
Title A comparative study on determination of trace elements in root and semen of Zizi
Year 1999
Source title Guangdong Weiliang Yuansu Kexue
Reference 6(12): 50-52
Abstract

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Author Ali-Shtayeh, M. S., R. R. Yaghmour, Y. R. Faidi, K. Salem and M. A. Al-Nuri
Title Antimicrobial activity of 20 plants used in folkloric medicine in the Palestinian ar
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Author Patil P; Patil BV
Title Insect pests of ber in north Karnataka
Year 1996
Source title South Indian Horticulture
Reference 44(3/4): 113
Abstract -

Author Patil P; Patil BV
Title Susceptibility of ber varieties to ber fruit borer (*Meridarchis scyroides* Meyrick)
Year 1996
Source title South Indian Horticulture
Reference 44(1/2): 59-60
Abstract -

Author Pradeep S; Rajagopal D; Sumithamma N; Ravikumar MR
Title Evaluation of different insecticides for the management of ber hairy caterpillar Th
Year 1996
Source title Myforest
Reference 32(3): 225-228
Abstract -

Author Prajapati BH; Gauswami DG; Prajapati MR
Title Cause and effect analysis for fruit yield in ber (*Zizyphus mauritiana*, Lamk)
Year 1996
Source title Gujarat Agricultural University Research Journal
Reference 21(2): 76-79
Abstract -

Author Reddy GS; Reddy MM; Rao DM; Reddy PSN
Title Controlling diseases on rainfed ber in Andhra Pradesh
Year 1996
Source title Indian Horticulture
Reference 41(3): 39-42
Abstract

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Author Saini RS; Yamdagni R; Kaushik RA; Thareja RK
Title Effect of pruning severity on growth, flowering, yield and quality of ber (Zizyphu
Year 1996
Source title Haryana Journal of Horticultural Sciences
Reference 25(1): 37-40
Abstract

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Author Sekar C; Rai RSV; Ramasamy C
Title Role of minor forest products in tribal economy in India: a case study
Year 1996
Source title Journal of Tropical Forest Science
Reference 8(3): 280-288

Abstract

A study was carried out to assess the extent of tribal involvement in the collection and marketing of minor forest products (MFPs) by the largest cooperative society operating in the province of Tamil Nadu, viz. the Sathyamangalam Hill Tribes LAMP (Large Area Multipurpose) Cooperative Society. Around 83% of the members were tribals who were actively involved in MFP collection. Non-tribals and Adi Dravidars comprised the remaining members. On an average, the tribals spent 8-10 h a day collecting MFPs. During the farming season, 20% of the tribal households also worked as agricultural labourers. Through MFP collection, the tribals earned on an average Rs 11 180 per annum per household of 3 earning members. Among the MFPs, amla (*Emblica officinalis* [Phyllanthus emblica]) topped the list yielding a revenue of Rs 24.57 lakhs in a year followed by broom grass (*Thysanolaena maxima*), and stone and tree moss. In terms of quantity, that of broom grass was the most followed by amla, and stone and tree moss. Other major products were from poochakai (*Sapindus emarginatus*), tamarind (*Tamarindus indica*), kadukai (*Terminalia chebula*), pungam (*Pongamia pinnata*, kernels), chikakai (*Acacia concinna*), ber (*Ziziphus* sp., dried fruits), wood apple (*Limonia acidissima*, dried fruits). Two marketing channels were operating for the MFP trade: channel I involved the tribals selling to the cooperative society, and the society acting as retailer to consumers, and channel II involved tribals selling to the cooperative as wholesaler, who then sold on to retailers (private traders) who sold to the consumers. Channel I provided a higher producers' share. The existence of a monopsony in marketing of MFPs in tribal areas leads to inefficiency in their marketing. Remedial measures are discussed.

Author Siddiqui S; Gupta OP
Title Effect of attached pedicel on the shelf life of ber (*Zizyphus mauritiana* Lamk) fruit
Year 1996
Source title Indian Journal of Plant Physiology
Reference 1(1): 70-72. 6 ref.

Abstract

Author Singh S; Ahlawat VP
Title Effect of foliar application of urea and zinc sulphate on yield parameters of ber (Z
Year 1996
Source title Haryana Journal of Horticultural Sciences
Reference 25(2): 33-35
Abstract

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Author Singh S; Ahlawat VP
Title Effect of various concentrations of urea and zinc sulphate on vegetative growth of
Year 1996
Source title Haryana Journal of Horticultural Sciences
Reference 25(1): 41-43
Abstract

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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 muricata* [*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.

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Abstract

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Author Singh YP; Sumbali G
Title Post-harvest microbial deterioration of ber (*Zizyphus mauritiana* Lamk.) fruits
Year 1996
Source title Biotechnology: new trends and prospects; Microbes agriculture, industry and environment
Reference Dehra Dun, 239-250 pp

Abstract

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Author Upadhyaya AK
Title Tree growth and forage production in block and canalside plantations in I.G.N.P. s
Year 1996
Source title Indian Forester
Reference 122(2): 117-121
Abstract

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Author Vyas HN
Title Pest complex of *Zizyphus mauritiana* Lamark
Year 1996
Source title Crop Research (Hisar)
Reference 11(2): 216-218. 5 ref.
Abstract

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Author Waeg YZ
Title Shoot tip culture of *Zizyphus jujuba* and plantlet formation
Year 1996
Source title Plant Physiology Communications
Reference (1): 26
Abstract

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Author Wang J and et al.
Title Quantitative determination of jujubosides a and b in the seeds of spine date (Zizip
Year 1996
Source title Chinese Traditional and Herbal Drugs
Reference 27(3): 154-156
Abstract

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Author Wong KC; Chee SG; Tan CH
Title Volatile constituents of the fruit of Zizyphus jujuba Mill. Var. inermis (bge.) Reh
Year 1996
Source title Journal of Essential Oil Research
Reference 8(3): 323-326
Abstract

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Author Zhumatov UZ
Title Elementary compositions of the fruits of Morus nigra and Zizyphus jujuba and the
Year 1996
Source title Chemistry of Natural Compounds C/C of Khimiia Prirodnikh Soedinenii
Reference 32(1): 100-101
Abstract

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Author Awasthi OP; Pathak RK; Pandey SD
Title Effect of sodicity and salinity levels on 4 scion cultivars budded on Indian jujube
Year 1995
Source title Indian Journal of Agricultural Sciences
Reference 65(5): 363-367
Abstract -

Author Awasthi OP; Pathak RK; Pandey SD
Title Effect of sodicity and salinity levels on four scion cultivars budded on indian juju
Year 1995
Source title Indian Journal of Agricultural Sciences
Reference 65(5): 363-367
Abstract -

Author Bal JS; Jawanda JS; Kahlon PS
Title Effect of pre-harvest spray of growth regulators on the pectin methyl esterase acti
Year 1995
Source title Journal of Food Science and Technology (Mysore)
Reference 32(2): 159-161. 12 ref.
Abstract -

Author Baviskar, M. R., D. P. Waskar and S. N. Kaulgud
Title Effect of various postharvest treatments on 'umran' ber fruits at low temperature st
Year 1995
Source title Indian Food Packer
Reference 49(6): 45-52
Abstract -

Author Cai, P., S. Cui and C. Kuoh
Title A new species of hishimonus injurious to Zizyphus jujuba (Homoptera: Cicadelloi
Year 1995
Source title Acta Entomologica Sinica
Reference 38(2): 217
Abstract -

Author Dhawan SR; Poonam Dhawan
Title Effect of aqueous foliar extracts of some trees on germination and early seedling g
Year 1995
Source title World Weeds
Reference 2(3/4): 217-221. 18 ref.
Abstract -

Author Donadio LC; Durigan JF
Title Evaluation of new fruit species in Sao Paulo, Brazil
Year 1995
Source title Proceedings of the Interamerican Society for Tropical Horticulture
Reference 39: 162-165

Abstract

Over 2 years, fruits were sampled from 10-year-old trees of 12 introduced species in the FCAV-UNESP germplasm collection and evaluated in relation to local conditions in Jaboticabal, Brazil (1431.4 mm of rain/year, 22.2 deg C mean temperature, 575 m altitude, 48 deg W and 21 deg S). The species studied were *Chrysophyllum cainito*, *Dovyalis hebecarpa*, *Pouteria campechiana*, *Tamarindus indica*, *Averrhoa carambola*, *Calocarpum mammosum* [*Pouteria sapota*], *Achras sapota* [*Manilkara zapota*], *Diospyros discolor*, *Bunchosia* spp., *Malpighia glabra*, *Clausena lansium* and *Ziziphus jujuba* [*Ziziphus* sp.]. Some species showed good adaptation to local conditions, but others had problems with dry periods and frost. Tree development was variable. In term of fruit quality, the species that performed best were *Achras sapota* and *Calocarpum mammosum*.

Author Erenmemisoglu A; Kelestimur F; Koker AH; Ustun H
Title Hypoglycaemic effect of *Zizyphus jujuba* leaves
Year 1995
Source title Journal of Pharmacy and Pharmacology
Reference 47(1): 72

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Author Goyal RK; Ojasvi PR; Bhati TK
Title Economic evaluation of water harvesting pond under arid conditions
Year 1995
Source title Indian Journal of Soil Conservation
Reference 23(1): 74-76. 1 ref.

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Author Hulwale TD; Desai UT; Karale AR; Kaulgud SN; Keskar BG
Title Variation in pollen characteristics of ber cultivars
Year 1995
Source title Journal of the Maharashtra Agricultural Universities
Reference 20(3): 470
Abstract

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Author Hulwale TD; Karale AR; Desai UT; Kaulgud SN
Title Pollen studies in ber (*Ziziphus mauritiana* Lamk.) cultivars
Year 1995
Source title Annals of Arid Zone
Reference 34(1): 47
Abstract

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Author Hulwale TD; Karale AR; Desai UT; Kaulgud SN; Keskar BG
Title POLLEN STUDIES IN BER (*ZIZIPHUS-MAURITIANA* LAMK) CULTIVARS
Year 1995
Source title Annals of Arid Zone
Reference 34(1): 47-50
Abstract

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Author Husain MM; Ali SH
Title Effect of the application of fertilizers to Zizyphus jujuba a host plant of lac insect
Year 1995
Source title Bangladesh Journal of Scientific and Industrial Research
Reference 30(2/3): 35-38. 8 ref.
Abstract

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Author Joshi S; Upadhyaya A; Sankhla D; Sankhla N
Title Effect of thidiazuron on antioxidants and the activities of activated oxygen proces
Year 1995
Source title Proceedings of the Plant Growth Regulator Society of America
Reference 22: 286-291
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Author Jothi BD; Tandon PL
Title Spatial distribution and sampling plan for the ber leaf thrips, Florithrips traegardhi
Year 1995
Source title Journal of Entomological Research
Reference 19(2): 111-117. 10 ref.
Abstract

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Author Jothi BD; Tandon PL
Title Present status of insect pests of ber in Karnataka
Year 1995
Source title University of Agricultural Sciences Bangalore Current Research
Reference 24(9): 153-155. 9 ref.
Abstract

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Author Kumar S; Sharma VP; Kapoor HC
Title Isozymic identification of cultivars of ber (*Zizyphus mauritiana* Lamk.)
Year 1995
Source title Journal of Horticultural Science
Reference 70(2): 303-306. 11 ref.
Abstract

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Author Kumar S; Sharma VP; Kapoor HC
Title Isozymic identification of cultivars of ber (*Zizyphus mauritiana* Lamk.)
Year 1995
Source title Journal of Horticultural Science
Reference 70(2): 303
Abstract

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Author Kundu SS; Pareek OP; Gupta AK
Title Effect of time and severity of pruning on physico-chemical characteristics and yield
Year 1995
Source title Haryana Journal of Horticultural Sciences
Reference 24(1): 23-30
Abstract -

Author Kundu SS; Pareek OP; Gupta AK
Title Effect of time and severity of pruning on physico-chemical characteristics and yield
Year 1995
Source title Haryana Journal of Horticultural Sciences
Reference 24(1): 23
Abstract -

Author Lee SS; Wang JS; Chen KCS
Title Chemical constituents from the roots of *Zizyphus jujuba* Mill var *spinosa* (i)
Year 1995
Source title Journal of the Chinese Chemical Society Taipei
Reference 42(1): 77
Abstract -

Author Mani M
Title Studies on the natural enemies of oriental mealybug, *Planococcus lilacinus* (Ckll.)
Year 1995
Source title Journal of Entomological Research
Reference 19(1): 61-70
Abstract

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Author Mani M
Title Studies on the natural enemies of the wax scale *Drepanococcus chiton* (Green) on
Year 1995
Source title Entomon
Reference 20(2): 55-58
Abstract

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Author Mani M; Krishnamoorthy A
Title Toxicity of pesticides to the wax scale parasitoid, *Cephaete brunniventris*
Year 1995
Source title Indian Journal of Plant Protection
Reference 22: 108-109
Abstract

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Author Masthana Reddy BG; Patil DR; Channabasappa KS; Hulamani NC; Patil SG
Title Performance of some cultivars of ber (*Zizyphus mauritiana* Lam) under arid zones
Year 1995
Source title South Indian Horticulture
Reference 43(5/6): 146-148
Abstract -

Author Mathur N; Ramawat KG; Nandwani D
Title Rapid in vitro multiplication of jujube through mature stem explants
Year 1995
Source title Plant Cell Tissue and Organ Culture
Reference 43(1): 75-77
Abstract -

Author Mathur N; Vyas A
Title Changes in isozyme patterns of peroxidase and polyphenol oxidase by VAM fungi
Year 1995
Source title Journal of Plant Physiology
Reference 145(4): 498-500
Abstract -

Author Mathur N; Vyas A
Title In vitro production of Glomus deserticola in association with Ziziphus nummulari
Year 1995
Source title Plant Cell Reports
Reference 14(11): 735
Abstract

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Author Mathur N; Vyas A
Title Changes in enzymes of nitrogen metabolism by va mycorrhizae in Ziziphus numm
Year 1995
Source title Journal of Plant Physiology
Reference 147(3/4): 331-333
Abstract

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Author Mathur N; Vyas A
Title Influence of VA mycorrhizae on net photosynthesis and transpiration of Ziziphus
Year 1995
Source title Journal of Plant Physiology
Reference 147(3-4): 328-330
Abstract

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Author Mathur N; Vyas A
Title Changes in nitrate reductase and glutamine synthetase activities in Ziziphus mauri
Year 1995
Source title Current Research
Reference 68(11): 1144-1146
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Author Mathur N; Vyas A
Title I. Influence of VA mycorrhizae on net photosynthesis and transpiration of Ziziphu
Year 1995
Source title Journal of Plant Physiology
Reference 147(3-4): 328-330
Abstract

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Author Maurya SK; Pandey DP; Singh JP; Pandey V
Title Constituents of Zizyphus oenoplea
Year 1995
Source title Pharmazie
Reference 50(5): 372
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Author Miyasaka A; Imoto T
Title Electrophysiological characterisation of the inhibitory effect of a novel peptide gu
Year 1995
Source title Brain Research
Reference 676(1): 63-68

Abstract

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Author Munoz SE; Silva RA; Lamarque A; Guzman CA
Title Protective capability of dietary Zizyphus mistol seed oil, rich in 18:3, n-3, on the d
Year 1995
Source title Prostaglandins Leukotrienes and Essential Fatty Acids
Reference 53(2): 135

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Author Musa Abu Z; Sabri S; Al-Aboudi A; Saleh Ajaz M
Title New cyclopeptide alkaloids from Zizyphus lotus
Year 1995
Source title Journal of Natural Products
Reference 58(4): 504

Abstract

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Author Nasri-Ayachi MB; Nabli MA
Title Pollen wall ultrastructure and ontogeny in *Ziziphus lotus* L. (Rhamnaceae)
Year 1995
Source title Review of Palaeobotany and Palynology
Reference 85(1/2): 85
Abstract -

Author Pandey D; Pathak RK; Tewari RK
Title Response of ber seedlings (*Ziziphus rotundifolia* Lam.) to soil sodicity
Year 1995
Source title Indian Journal of Plant Physiology
Reference 38(3): 276-278
Abstract -

Author Pandit NC
Title White grub, *Rhinyptia meridionous* Arrow (Scarabaeidae: Coleoptera). A serious
Year 1995
Source title Environment and Ecology
Reference 13(1): 245-246. 4 ref.
Abstract -

Author Panhwar M
Title Temperate zone fruits in the subtropical area of Sindh Pakistan
Year 1995
Source title Acta Horticulturae
Reference 155-164
Abstract

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Author Quadir MA; Hossain T
Title Some qualitative aspects of jujube (*Zizyphus mauritiana* Lamk.)
Year 1995
Source title Thai Journal of Agricultural Science
Reference 28(4): 391
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Author Rao MS; Das ND; Sankar GRM
Title Chemical control of ber fruitfly, *Carpomyia vesuviana*
Year 1995
Source title Annals of Plant Protection Sciences
Reference 3(2): 164-190
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Author Regehr DL; Elbrahli A
Title Wild jujube (*Ziziphus lotus*) control in Morocco
Year 1995
Source title Weed Technology
Reference 9(2): 326-330
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Author Ren X; Li J; Chang J
Title A study of storage life and biological characteristics in jujube (*Zizyphus jujuba* M
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Source title Acta Horticulturae Sinica
Reference 22(1): 25
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Author Saini RS; Ram Dayal; Rakesh
Title Effect of spacing on fruit drop, yield and quality of ber cv. Gola under rainfed con
Year 1995
Source title Crop Research (Hisar)
Reference 10(3): 324-326. 4 ref.
Abstract

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Author Salomao AN
Title Effects of liquid nitrogen storage on Zizyphus joazeiro seeds
Year 1995
Source title Cryo Letters
Reference 16(2): 85
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Author Sawale RS; Kotecha PM; Kadam SS
Title Studies on polyphenol oxidase in ber (Zizyphus mauritiana Lamk)
Year 1995
Source title Indian Food Packer
Reference 49(3): 21
Abstract

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Author Siddiqui S; Dayal J; Sharma RK
Title Effect of 2,4-d, difolaton and urea sprays on fruit retention and quality of ber (Ziz
Year 1995
Source title Advances in research and development in horticulture for export, Hisar; India
Reference Horticultural Society of Haryana, 171-175 pp
Abstract

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Author Siddiqui S; Dayal J; Sharma RK
Title Effect of 2, 4-d, difolaton and urea sprays on fruit retention and quality of ber (Ziz
Year 1995
Source title Haryana Journal of Horticultural Sciences
Reference 24(3/4): 171-175
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Author Siddiqui S; Gupta OP
Title Effect of post harvest application of some chemicals on the shelf life of ber (Zizyp
Year 1995
Source title Haryana Journal of Horticultural Sciences
Reference 24(1): 19
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Author Silva RA; Munoz SE; Guzman CA; Evnard AR
Title Effects of dietary n-3, n-6 and n-9 polyunsaturated fatty acids on benzo(a)pyrene-i
Year 1995
Source title Prostaglandins Leukotrienes and Essential Fatty Acids
Reference 53(4): 273
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Author Singh B; Pandey VB
Title An n-formyl cyclopeptide alkaloid from *Zizyphus nummularia* bark
Year 1995
Source title Phytochemistry
Reference 38(1): 271
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Author Singh K; Chauhan KS; Singh S
Title Removal of nutrients by ber tree *Zizyphus mauritiana* L. cv. Umran.
Year 1995
Source title Environment and Ecology
Reference 13(1): 44-46. 6 ref.
Abstract

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Title Removal of nutrient by ber tree (*Zizyphus mauritiana* Lam. cv umran)
Year 1995
Source title Environment and Ecology
Reference 13(1): 44-46
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Author Singh K; Chauhan KS; Singh S
Title Effect of n, p and k on growth and yield attributes of ber cv. Umran
Year 1995
Source title Haryana Journal of Horticultural Sciences
Reference 24(3/4): 176-180
Abstract -

Author Singh MP; Vashishtha BB
Title Losses due to bird damage in different jujube cultivars
Year 1995
Source title Annals of Arid Zone
Reference 34(4): 305-307. 2 ref.
Abstract -

Author Singh R; Pal HM; Gupta M; Malik OP
Title Screening of some carbonyl compounds as repellents to honey bees. II. Effect of c
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Source title Korean Journal of Apiculture
Reference 10(2): 131-134
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Title Physico-chemical attributes and mineral composition of ber leaves as affected by f
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Source title Haryana Journal of Horticultural Sciences
Reference 24(2): 94
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Title Response of nitrogen and zinc application in ber (*Zizyphus mauritiana* Lamk)
Year 1995
Source title Haryana Journal of Horticultural Sciences
Reference 24(3/4): 190-192
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Author Srivastava N; Srivastava AK; Kamal
Title New hyphopodiate hyphomycetes from North-Eastern Uttar Pradesh, India
Year 1995
Source title Mycological Research
Reference 99(4): 395-396
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Author Sundaramoorthy S; Rajpurohit CS
Title An alternative method of leaf area measurements in some desert plants.
Year 1995
Source title Journal of Phytological Research
Reference 8(2): 123-128
Abstract -

Author Suttisri R; Lee IS; Kinghorn AD
Title Plant-derived triterpenoid sweetness inhibitors
Year 1995
Source title Journal of Ethnopharmacology
Reference 47(1): 9-26
Abstract -

Author Tiwari RJ; Banafar RNS
Title Studies on the nutritive constituents yield and yield attributing characters in some
Year 1995
Source title Indian Journal of Plant Physiology
Reference 38(1): 88-89
Abstract -

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Author Varshney RK
Title Flow of some nutrients in the metabolism of Indian lac insect *Kerria lacca* (Kerr) (
Year 1995
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Reference 3(2): 172-177. 21 ref.
Abstract -

Author Verma KS; Kumar S
Title Survival and dispersal of *Isariopsis indica* var. *zizyphi* causing mouldy leaf spot of
Year 1995
Source title Indian Phytopathology
Reference 48(1): 45-48
Abstract -

Author Weinges K; Schick H
Title Dodecaacetylprodelphinidin b3 from the dried leaves of *Ziziphus spina-christi*
Year 1995
Source title Phytochemistry
Reference 38(2): 505
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Author Yun MS; Kim YS; Ahn CS
Title The method of controlled pollination to facilitate seed set and development of em
Year 1995
Source title Journal Korean Society for Horticultural Science
Reference 36(3): 377
Abstract

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Author Zhang SY; Wang LX
Title Fruit consumption and seed dispersal of *Ziziphus cinnamomum* (Rhamnaceae) by
Year 1995
Source title Biotropica
Reference 27(3): 397
Abstract

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Author Abbas MF; Al-Niami JH; Al-Sareh EA
Title The effect of ethephon on the ripening of fruits of jujube
Year 1994
Source title Journal of Horticultural Science
Reference 69(3): 465-466
Abstract -

Author Abbas MF; Al-Niami JH; Saggar RAM
Title Some aspects of developmental physiology of jujube fruit (*Ziziphus spinachristi*)
Year 1994
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Reference 21B(5): 171-181
Abstract -

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Source title Pakistan Journal of Forestry
Reference 44(3): 103-119
Abstract -

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Title Performance of ber cultivars growth under patiala conditions
Year 1994
Source title Progressive Horticulture
Reference 26(3/4): 141-146
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Title Effect of sodicity and salinity levels on survival and total chlorophyll content of b
Year 1994
Source title Horticultural Journal
Reference 7(1): 51-54. 12 ref.
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Author Barboni, L., P. Gariboldi, E. Torregiani and L. Verotta
Title Cyclopeptide alkaloids from *Ziziphus mucronata*
Year 1994
Source title Phytochemistry
Reference 35(6): 1579
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Author Beniwal, L. S., K. S. Chauhan and R. S. Singhrot
Title Effect of various storage media of budlings and storage period on bare-rooted tran
Year 1994
Source title Haryana Journal of Horticultural Sciences
Reference 23(1): 24
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Author Chidumayo EN
Title Effects of wood carbonization on soil and initial development of seedlings in mio
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Reference 70(1/3): 353-357. 16 ref.
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Author Chiou ChuYing; Huang MingTeh
Title Effects of lighting during the night on the flowering and yielding date of Indian ju
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Source title Chinese Journal of Agrometeorology
Reference 1(3): 115-120. 25 ref.
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Author Das ND; Rao MS; Sankar BRM
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Title Dissipation of quinalphos and monocrotophos on ber
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Source title Plant Protection Bulletin (Faridabad)
Reference 46(2/3): 26-27. 3 ref.

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Title Effect of calcium chloride and Bavistin on the post-harvest life of jujube fruits (Zi
Year 1994
Source title Progressive Horticulture
Reference 26(1/2): 72-76. 13 ref.

Abstract

Zizyphus [Ziziphus] mauritiana fruits dipped in 4% CaCl₂ and 250 p.p.m. Bavistin [carbendazim] were of higher organoleptic quality after 3, 6 and 9 days of storage in cardboard boxes at 15-40 deg C (ambient conditions) than untreated controls at the same stages.

Author Dinesh, K., C. B. S. Rajput and S. P. Singh
Title Effect of calcium chloride and bavistin on the post harvest life of jujube fruits (Zi
Year 1994
Source title Progressive Horticulture
Reference 26(1/2): 72-76
Abstract

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Author Glombitza KW; Mahran GH; Mirhom YM; Michel KG
Title Hypoglycemic and antihyperglycemic effects of Zizyphus spina-christi in rats
Year 1994
Source title Planta Medica
Reference 60(3): 244
Abstract

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Author Gour TB; Sriramulu M
Title Aubeus himalayanus (curculionidae: Coleoptera), ber fruit weevil, a new pest of Z
Year 1994
Source title Indian Journal of Plant Protection
Reference 22(2): 228
Abstract

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Author Hore JK; Sen SK
Title Role of presowing seed treatment on germination, seedling growth and longevity
Year 1994
Source title Indian Journal of Agricultural Research
Reference 28(4): 285-289. 7 ref.
Abstract -

Author Hussain F; Ahmed M; Shaheen G; Durrant MJ
Title Phytosociology of the vanishing tropical deciduous forest in district Swabi, Pakist
Year 1994
Source title Pakistan Journal of Botany
Reference 26(1): 149-160
Abstract -

Author Hussain F; Shah Z; Sher Z; Saljoqi AR
Title Air borne particulates and their effect on some roadside wild trees of Peshawar Ci
Year 1994
Source title Sarhad Journal of Agriculture
Reference 10(1): 91-98
Abstract -

Author Joshi NL; Singh YV
Title Estimation of crop water requirement and crop planning for virgin arid lands unde
Year 1994
Source title Annals of Arid Zone
Reference 33(2): 113-116. 6 ref.
Abstract

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Author Kalyan Singh
Title Site suitability and tolerance limits of trees, shrubs and grasses on sodic soils of G
Year 1994
Source title Indian Forester
Reference 120(3): 225-235. 16 ref.
Abstract

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Author Kamble AB; Desai UT; Choudhari SM
Title Effect of micronutrients on fruit set, fruit retention and yield of ber (Ziziphus mau
Year 1994
Source title Annals of Arid Zone
Reference 33(1): 53
Abstract

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Author Kamble AB; Desai UT; Choudhari SM
Title Effect of micronutrients on fruit set, fruit retention and yield of Ber (*Zizyphus ma*
Year 1994
Source title Annals of Arid Zone
Reference 33(1): 53-55. 7 ref.
Abstract

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Author Khan MA; Nizami SS; Khan SA
Title The chemical studies of *Zizyphus jujube*
Year 1994
Source title Pakistan Journal of Scientific and Industrial Research
Reference 37(10): 448. 12 ref.
Abstract

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Author Khan MA; Nizami SS; Khan SA
Title The chemical studies of *Zizyphus jujuba*
Year 1994
Source title Pakistan Journal of Scientific and Industrial Research
Reference 37(10): 448
Abstract

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Author Krishnamurthy R; Srinivas T; Bhagwat KA
Title Effect of air pollution on some bund trees of the agricultural lands
Year 1994
Source title Journal of Environmental Biology
Reference 15(2): 97-106. 22 ref.
Abstract -

Author Kundu SS; Pareek OP; Gupta AK
Title Effect of time and severity of pruning on growth, flowering and fruiting in ber (Zi
Year 1994
Source title Annals of Arid Zone
Reference 33(1): 49-52
Abstract -

Author Kundu SS; Pareek OP; Gupta AK
Title Effect of time and severity of pruning on growth, flowering and fruiting in ber (Zi
Year 1994
Source title Annals of Arid Zone
Reference 33(1): 49
Abstract -

Author Li J; Hu X
Title Rejuvenation and utilization of wild *Ziziphus mauritiana*
Year 1994
Source title Forest Research
Reference 7(2): 224-226
Abstract

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Author Liu M; Cheng JR
Title A taxonomic study on Chinese jujube and wild jujube
Year 1994
Source title Journal of the Hebei Agricultural University
Reference 17(4): 1-10
Abstract

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Author Maghembe JA
Title Out of the forest: indigenous fruit trees in southern Africa.
Year 1994
Source title Agroforestry Today
Reference 6(2): 4-6. 4 ref.
Abstract

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Author Mitrofanova IV; Chebotar AA; Mitrofanova OV
Title Capacity for in vitro morphogenesis in vegetative buds and embryos of Zizyphus j
Year 1994
Source title Russian Journal of Plant Physiology C/C of Fiziologiiia Rastenii
Reference 41(6): 722
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Author Mukherjee IN; Singh RK; Singh J
Title Incidence and control of jujube gall mite (Eriophyes cernuus) at Varanasi
Year 1994
Source title Indian Journal of Agricultural Sciences
Reference 64(5): 343-345
Abstract

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Author Naik KR; Rokhade AK
Title Effects of post-harvest treatments on keeping quality of ber fruits
Year 1994
Source title Journal of Maharashtra Agricultural Universities
Reference 19(2): 180-183
Abstract

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Author Nerd A; Aronson JA; Mizrahi Y
Title Introduction and domestication of rare and wild fruit and nut trees for desert areas
Year 1994
Source title WANATCA Yearbook
Reference 18: 42-53
Abstract -

Author Prins H; Maghembe JA
Title Germination studies on seed of fruit trees indigenous to Malawi
Year 1994
Source title Forest Ecology and Management
Reference 64(2-3): 111-125
Abstract -

Author Puri S; Singh S; Bhushan B
Title Evaluation of fuelwood quality of indigenous and exotic tree species of India's se
Year 1994
Source title Agroforestry Systems
Reference 26(2): 123-130. 17 ref.
Abstract -

Author Ram Kishan; Godara NR
Title Physical and chemical parameters as affected by post-harvest treatment of differen
Year 1994
Source title Haryana Agricultural University Journal of Research
Reference 24(2/3): 111-114. 6 ref.
Abstract

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Author Saini RS; Yamdagni R, Kaushik RA; Thareja RK
Title Effect of pruning severity on growth, fruit yield and quality of ber (*Zizyphus maur*
Year 1994
Source title Haryana Journal of Horticultural Sciences
Reference 23(4): 278
Abstract

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Author Saini RS; Yamdagni R; Thareja RK; Kaushik RA
Title Performance of selected ber cultivars under rainfed conditions
Year 1994
Source title Annals of Arid Zone
Reference 33(4): 333
Abstract

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Author Shah BH; Noor M
Title Evaluation of multipurpose tree species under Barani conditions at Dagarkotli
Year 1994
Source title Pakistan Journal of Forestry
Reference 44(2): 62-65
Abstract -

Author Sharma BM; Rathore SS; Gupta JP
Title Compatibility studies on Acacia tortilis and Zizyphus rotundifolia with field crops
Year 1994
Source title Indian Forester
Reference 120(5): 423
Abstract -

Author Singh BP; Chatterjee R
Title Potential for increasing lac production in West Bengal.
Year 1994
Source title Van Vigyan
Reference 32(1/2): 44-47. 2 ref.
Abstract -

Author Sunil Puri; Shambhu Singh; Bharat Bhushan
Title Fuelwood value index in components of ten tree species of arid region in India.
Year 1994
Source title Industrial Crops and Products
Reference 3(1/2): 69-74. 8 ref.
Abstract -

Author Verma KS; Sanjiv Kumar; Cheema SS
Title Pathogenic potential and histopathology of *Isariopsis indica* var. *zizyphi* causing
Year 1994
Source title Plant Disease Research
Reference 9(2): 162-165. 5 ref.
Abstract -

Author Verma LP; Room Singh; Dwivedi PN
Title Changes in properties of the salt affected soils under different fruit species
Year 1994
Source title Journal of the Indian Society of Soil Science
Reference 42(1): 141-142. 5 ref.
Abstract -

Author Wang Yun
Title A preliminary study on the geographical provenance of *Zizyphus mauritiana*
Year 1994
Source title Forest Research
Reference 7(3): 334-335. 2 ref.
Abstract

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Author Yu ZhanRen
Title A study on the biological characteristics of *Zizyphus mauritiana* at hot and dry vall
Year 1994
Source title Forest Research
Reference 7(2): 220-223
Abstract

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Author Yun MS; Kim YS; Ahn CS
Title Possible causes of poor pollen germination in the pistil of Chinese jujube (*Zizyph*
Year 1994
Source title Journal Korean Society for Horticultural Science
Reference 35(5): 466
Abstract

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Author Zhang ZJ; Chen ZR; Lin JY; Zhang YT
Title The anatomy of secondary phloem and periderm of eight host tree species of Kerri
Year 1994
Source title Acta Botanica Yunnanica
Reference 16(4): 362-366

Abstract

The anatomy of secondary phloem and periderm in eight host species of *Kerria yunnanensis* Ou et Hon is described, the eight species include *Flemingia macrophylla* (Willd.) Merr., *Pueraria wallichii* DC., *Ficus variegata* Bl. Var. *chlorocarpa* King, *Albizia bracteata* Dunn, *Samanea saman* (Jacq.) Merr., *Butea monosperma* (Lam.) Taub., *Ziziphus mauritiana* Lam. And *Schleichera oleosa* (Lour.) Oken. The axial system of their secondary phloem consists of sieve tubes, companion cells, phloem parenchyma cells and fibres. The transverse system is rays. In *Ficus variegata* var. *chlorocarpa* and *Schleichera*, there are laticifer and secretory tissues respectively. In *Ziziphus mauritiana* and *Schleichera oleosa*, the sieve tube members have end walls oblique to transverse with compound or simple sieve plates. In *Albizia bracteata* and *Samanea saman*, the sieve tube members have compound sieve plates. In the other species the sieve tube members have horizontal end wall with simple sieve plates. Sieve tube members of the species, except *Albizia bracteata*, contain P-protein. All sieve tube members of the species except *Ficus variegata* var. *chlorocarpa* contain starch. The phloem of branches 1.5-2.0cm in diameter is thin in the species, except *Samanea saman*, *Butea monosperma*, *Schleichera oleosa*. In winter every species retain rather wide functional phloem (199.9-868.6 micrometers in width). The sieve tube members in *Albizia bracteata* retain some primitive features, while in other species, sieve tube members and companion cells are of specialized types or intermediate types.

Author Ashraf CM; Sadaqat Hamid; Ahmad M
Title Biological and chemical evaluation of the two species of *Zizyphus* (N.O. Rhamna
Year 1993
Source title Hamdard Medicus
Reference 36(1): 101-107. 25 ref.

Abstract

Author Bajwa, G. S., J. S. Bal, S. S. Brar and P. P. S. Minhas
Title Chemical weed control in ber orchards
Year 1993
Source title Integrated weed management for sustainable agriculture, Hisar; India
Reference Isws, 225-227 pp
Abstract -

Author Bal JS; Bajwa GS; Singh SN
Title Effect of ethephon application at turning stage on ripening and quality of Umran b
Year 1993
Source title The Punjab Horticultural Journal
Reference 33(1/4): 84-87. 8 ref.
Abstract -

Author Baudet, S., R. Shaoulian and D. M. Bers
Title Effects of thapsigargin and cycloplazonic acid on twitch force and Sarcoplasmic r
Year 1993
Source title Circulation Research
Reference 73(5): 813
Abstract -

Author Bisht RP; Toky OP
Title Growth pattern and architectural analysis of nine important multipurpose trees in
Year 1993
Source title Canadian Journal of Forest Research
Reference 23(4): 722-730
Abstract

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Author Bisht RP; Toky OP; Singh SP
Title Plasticity of branching in some important tree species from arid north-western Ind
Year 1993
Source title Journal of Arid Environments
Reference 25(3): 307-313. 17 ref.
Abstract

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Author Byung Hoon, H., P. Myung Hwan and Y. N. Han
Title Sedative activity of aporphine and cyclopeptide alkaoids isolated from the seeds o
Year 1993
Source title Journal of the Pharmaceutical Society of Korea
Reference 37(2): 143
Abstract

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Author Chaudhary SK; Amarjit Singh
Title Effect of N, P and K on the growth, yield and leaf nutrient status in ber (Zizyphus
Year 1993
Source title The Punjab Horticultural Journal
Reference 30(1-4): 117-122. 8 ref.
Abstract

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Author Chovatia RS; Patel DS; Patel GV
Title Performance of ber (Ziziphus mauritiana Lamk.) cultivars under arid conditions
Year 1993
Source title Annals of Arid Zone
Reference 32(4): 215-217
Abstract

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Author Chovatia, R. S., D. S. Patel and G. V. Patel
Title Performance of ber (Ziziphus mauritiana Lamk) cultivars under arid conditions
Year 1993
Source title Annals of Arid Zone
Reference 32(4): 215
Abstract

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Author Devi IR; Babu RSH
Title Effect of time of pruning on growth of ber (Zizyphus [Ziziphus] mauritiana Lamk)
Year 1993
Source title The Punjab Horticultural Journal
Reference 33(1/4): 65-69. 2 ref.
Abstract

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Author Dhatt AS; Grewal GPS; Dhillon WS
Title Effect of N, P and K treatments on growth and quality of Umran ber (Ziziphus ma
Year 1993
Source title The Punjab Horticultural Journal
Reference 33(1/4): 70-75. 16 ref.
Abstract

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Author Dhatt, A. S., G. P. S. Grewal, B. S. Chahil and D. S. Dhillon
Title Removal of npk by kinnow mandarin and urman ber
Year 1993
Source title Acta Horticulturae
Reference 541:
Abstract

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Author Dwivedi BK; Malhotra SK; Misra SL
Title Correlation of soil moisture and pH to the population dynamics of *Tylenchus filif*
Year 1993
Source title Indian Journal of Agricultural Research
Reference 27(2): 81-86. 14 ref.
Abstract -

Author Dwivedi SC; Awasthi CJ
Title Toxicity of synthetic pyrethroids to white grub *Maladera insanabilis* (Brenske) (C
Year 1993
Source title Pest Management and Economic Zoology
Reference 1(1): 64-65. 2 ref.
Abstract -

Author Ghedira K; Chemli R; Richard B; Nuzillard JM
Title Two cyclopeptide alkaloids from *Zizyphus lotus*
Year 1993
Source title Phytochemistry
Reference 32(6): 1591
Abstract -

Author Ghosh LK; Deym DC; Bandopadhyay AK; Gupta BK
Title Physico-chemical studies of Zizyphus mauritiana (kool) mucilage for its utilizatio
Year 1993
Source title Research and Industry
Reference 38(2): 105
Abstract

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Author Grewal SS; Gurmail Singh; Dhillon WS
Title Effect of growth regulators on fruit drop and quality of fruit in ber (Zizyphus mau
Year 1993
Source title The Punjab Horticultural Journal
Reference 33(1/4): 76-83. 16 ref.
Abstract

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Author Gril J; Thibaut B; Berrada E; Martin G
Title Hygrothermal recovery of greenwood.1. Influence of temperature - A study of the
Year 1993
Source title Annales des Sciences Forestieres
Reference 50(1): 57-70
Abstract

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Author Grill J; Thibaut B; Berrada E; Martin G
Title Hygrothermal recovery of green wood. I. Influence of temperature. A study of the
Year 1993
Source title Annales des Sciences Forestieres
Reference 50(1): 57
Abstract -

Author Hiwale SS; Raturi GB
Title Influence of severity of pruning on growth, yield and quality of ber (Zizyphus ma
Year 1993
Source title Progressive Horticulture
Reference 25(3/4): 161-163
Abstract -

Author Hussain F; Ahmed M; Durani MJ; Shaheen G
Title Phytosociology of the vanishing tropical dry deciduous forests in District Swabi,
Year 1993
Source title Pakistan Journal of Botany
Reference 25(1): 51-66
Abstract -

Author Indian Institute of Horticultural Research
Title Research Report on Biochemistry of Fruits at I.I.H.R. No. 3. 1981-1983
Year 1993
Source title IIHR News
Reference 14(1): 1-6
Abstract

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Author Itnal CJ; Surakod VS; Sajjan GC
Title Alternative land use systems for black soils of Karnataka
Year 1993
Source title Rainfed Agriculture Research Newsletter
Reference 2 & 3: 14-15
Abstract

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Author Jagtap DD; Wavhal KN
Title Influence of irrigation and mulches on flowering and yield of ber (*Zizyphus mauri*)
Year 1993
Source title South Indian Horticulture
Reference 41(2): 111-112
Abstract

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Author Jagtap DD; Wavhal KN
Title Influence of irrigation and mulches on flowering and yield of ber (*Zizyphus mauri*)
Year 1993
Source title South Indian Horticulture
Reference 41(2): 111
Abstract -

Author Jothi BD; Tandon PL
Title Biology and feeding behaviour of ber (*Zizyphus mauritiana* Lam) fruit borer, Meri
Year 1993
Source title Journal of Entomological Research
Reference 17(1): 49
Abstract -

Author Kadam SS; Kotecha PM; Adsule RN
Title Changes in physico-chemical characteristics and enzyme activities during ripening
Year 1993
Source title Indian Food Packer
Reference 47(2): 5
Abstract -

Author Kamkishan; Godara NR; Godara RK
Title Physical and chemical parameters as affected by various storage conditions during
Year 1993
Source title Progressive Horticulture
Reference 25(1/2): 60-65. 6 ref.
Abstract

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Author Khan FS
Title Bioeconomic interaction of single scattered trees on farmlands
Year 1993
Source title Pakistan Journal of Forestry
Reference 43(3): 173-180
Abstract

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Author Kuntal JS
Title Postembryonic development and various growth indices of white grub beetle, Hol
Year 1993
Source title Uttar Pradesh Journal of Zoology
Reference 13(1): 33-36. 10 ref.
Abstract

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Author Mahran GH; Glombitza KW; Mirhom YW; Hartmann R
Title Saponins of Zizyphus spina-cristi growing in egypt
Year 1993
Source title Planta Medica
Reference 59(7): A 612
Abstract

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Author Malandrino P; Paolini C
Title Afforestation in an arid zone. An integrated project for reclamation in Damergou,
Year 1993
Source title Cellulosa e Carta
Reference 44(5): 38-57. 8 ref.
Abstract

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Author Mani M
Title Studies on mealybugs and their natural enemies in ber orchards
Year 1993
Source title Journal of Biological Control
Reference 7(2): 75-80
Abstract

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Author Mathur N; Ramawat KG; Sonie KC
Title Plantlet regeneration from seedlings explants of Ziziphus and silver nitrate and nu
Year 1993
Source title Gartenbauwissenschaft
Reference 58(6): 255
Abstract

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Author Mathur N; Ramawat KG; Sonie KC
Title In vitro propagation of Ziziphus nummularia
Year 1993
Source title Annals of Arid Zone
Reference 32(4): 219
Abstract

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Author Mathur N; Ramawat KG; Sonie KC
Title Plantlet regeneration from seedling explants of Ziziphus and silver nitrate and nutr
Year 1993
Source title Gartenbauwissenschaft
Reference 58(6): 255-260
Abstract

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Author Mertia RS; Upadhya AK
Title Performance of tree species suitable for shelterbelt plantation in Thar desert.
Year 1993
Source title Current Agriculture
Reference 17(1/2): 109-111. 5 ref.
Abstract

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Author Mukesh Sharma; Majumdar V/L
Title Some new post-harvest diseases of ber fruits in India
Year 1993
Source title Indian Phytopathology
Reference 46(4): 415.
Abstract

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Author Mukherjee S; Soni AK
Title Growth and yield of ber (*Ziziphus mauritiana* Lamk.) cv Seo under different pruni
Year 1993
Source title Annals of Arid Zone
Reference 32(3): 165-166
Abstract

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Author Nanthakumar S; Shanmugavelu KG
Title Studies on the effect of pruning on fruit-set and yield of certain ber cultivars (Zizy
Year 1993
Source title The Punjab Horticultural Journal
Reference 30(1-4): 111-116. 33 ref.
Abstract

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Author Neeraja G; Reddy SA; Babu RH
Title Studies on the floral biology of ber cultivar 'Seb'.
Year 1993
Source title Journal of Research Apau (Andhra Pradesh Agricultural University)
Reference 21(4): 243-245. 10 ref.
Abstract

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Author Padmanabhan S; Vishwanatha S; Narasimhamurthy K; Rao SV
Title Effect of feeding ber (Zizyphus mauritiana Lam.) juice on growth, blood composi
Year 1993
Source title International Journal of Food Sciences and Nutrition
Reference 44(2): 91-94. 12 ref.
Abstract

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Author Pandey SD; Pathak RK; Awasthi OP
Title Note on effect of salinity levels on nutrient status in ber.
Year 1993
Source title Indian Journal of Horticulture
Reference 50(1): 46-48. 13 ref.
Abstract

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Author Pandey VB; Tripathi YC
Title A new triterpenoid saponin from Zizyphus rugosa
Year 1993
Source title Fitoterapia
Reference 64(4): 341
Abstract

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Author Patel BT; Shakhela RR; Kalyanasundaram NK; Patil RG
Title Chemical composition of leaves of some ber cultivars
Year 1993
Source title Annals of Arid Zone
Reference 32(2): 109
Abstract

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Author Pelotto JP; Del Pero Martinez MA
Title Flavonoid variation with the plant age in Zizyphus mistol leaves
Year 1993
Source title Biochemical Systematics and Ecology
Reference 21(5): 645
Abstract

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Author Ramadevi I; Babu RH
Title The effect of pruning on fruit quality of ber (*Zizyphus mauritiana* Lamk.) cv. Gola
Year 1993
Source title Journal of Research Apau (Andhra Pradesh Agricultural University)
Reference 21(4): 246-247. 1 ref.
Abstract

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Author Ramkishan NRG; Godara RK
Title Physical and chemical parameters as affected by various storage conditions during
Year 1993
Source title Progressive Horticulture
Reference 25(1/2): 60
Abstract

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Author Raturi GB; Hiwale SS
Title Horti-silvi-pastoral system for increased productivity of marginal and degraded la
Year 1993
Source title Advances in Horticulture and Forestry
Reference 3: 179-186. 3 ref.
Abstract

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Author Reddy VVS; Ramesh Babu T; Narasimha Rao B
Title Repelin - an effective botanical insecticide against ber fruitfly *Carpomyia vesuvia*
Year 1993
Source title Neem and environment, Bangalore; India
Reference Science Publishers, 575-580 pp
Abstract

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Author Sandhu SS
Title A note on the effect of post-harvest dip of ethephon on the ripening of umran ber f
Year 1993
Source title Haryana Journal of Horticultural Sciences
Reference 22(4): 295
Abstract

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Author Sandhu SS; Thind SS; Bal JS
Title Effect of NAA on physico-chemical characters of Umran ber.
Year 1993
Source title The Punjab Horticultural Journal
Reference 30(1-4): 123-130. 11 ref.
Abstract -

Author Sharma A
Title Cultural management of Larvacarus transitans (Ewing) in Rajasthan.
Year 1993
Source title Annals of Arid Zone
Reference 32(4): 265. 1 ref.
Abstract -

Author Sharma A; Naqvi AR
Title Assessment of losses in ber from the attack of Larvacarus transitans (Ewing).
Year 1993
Source title Indian Journal of Entomology
Reference 55(2): 220-222. 2 ref.
Abstract -

Author Shinde SR; Ghatge RD; Mehetre SS
Title Comparative studies on the growth and development of sandalwood tree in associ
Year 1993
Source title Indian Journal of Forestry
Reference 16(2): 165-166. 5 ref.

Abstract

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Author Sinha USP; Sinha AK
Title Amino acids in the leaves of *Tectona grandis* and *Zizyphus mauritiana*, the second
Year 1993
Source title Indian Journal of Sericulture
Reference 32(2): 223-224. 5 ref.

Abstract

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Author Tambe TB; Ramshe DG; Walunjkar RB
Title Dryland fruit crops for scarcity zone
Year 1993
Source title Maharashtra Journal of Horticulture
Reference 7(1): 105-106

Abstract

Among 23 species of fruit trees assessed for their ability to grow and survive in the hot, dry climate of Rahuri (India), mahua (*Bassia latifolia* [*Madhuca longifolia*]), soapnut (*Sapindus mukorossi*), jamun (*Syzygium cumini*), aonla (*Embllica officinalis* [*Phyllanthus emblica*]), charoli (*Buchanania latifolia*), ber (*Zizyphus mauritiana* [*Ziziphus mauritiana*]), karonda (*Carissa carandas*), tamarinds (*Tamarindus indica*) and particularly drumstick (*Moringa pterygosperma* [*M. oleifera*]) performed best. Five-year-old drumstick trees were tallest (annual increase in height, 0.94 m), showed the largest collar girth (0.79 m), the largest GBH [girth at breast height] (0.48 m), and the largest tree volume (35.16 m³). The survival rate of this and 2 other species was 87.5%, compared with 75% for 2 species, 50% for 3 species, and 100% for 13 species.

Author Tambe TB; Ramshe DG; Walunjkar RB
Title Dryland fruit crops for scarcity zone.
Year 1993
Source title Maharashtra Journal of Horticulture
Reference 7(1): 105-106. 5 ref.
Abstract

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Author Toky OP; Bisht RP
Title Above-ground and below-ground biomass allocation in important fuelwood trees f
Year 1993
Source title Journal of Arid Environments
Reference 25(3): 315-320
Abstract

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Author Verinumbe I
Title Soil and *Leucaena leucocephala* L. growth variability under *Faidherbia albida* Del
Year 1993
Source title Agroforestry Systems
Reference 21(3): 287
Abstract

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Author Verma SK
Title Biology of *Tonica zizyphi* [*Psorosticha zizyphi*] on jujube
Year 1993
Source title Annals of Arid Zone
Reference 32(3): 179-181. 4 ref.
Abstract

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Author Verma SK
Title Biology of *Tonica zizyphi* Stainton on jujube (*ziziphus mauritiana* Lamk.)
Year 1993
Source title Annals of Arid Zone
Reference 32(3): 179-181
Abstract

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Author Wen HC; Hao HH; Lin CC
Title Seasonal occurrence and chemical control of the citrus red mite (*Panonychus citri*)
Year 1993
Source title Journal of Agricultural Research of China
Reference 42(3): 303-308. 14 ref.
Abstract

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Author Abbas MF; Al-Niami JH; Al-Sareh EA
Title The ripening of gamma irradiated fruits of jujube
Year 1992
Source title Journal of Horticultural Science
Reference 67(5): 627-629
Abstract -

Author Abbasi QD; Hussain T; Talpur MA; Memon MA
Title Efficacy of different insecticides in controlling ber fruit fly, *Capromyia vesuviana*
Year 1992
Source title Zoology, Lahore; India
Reference The Society, 357-362 pp
Abstract -

Author Atul Chandra; Munish Makhija
Title Effect of shade on growth of budded ber plants.
Year 1992
Source title Agricultural Science Digest, India
Reference 12(4): 213-214. 1 ref.
Abstract -

Author Bagle, B. G.
Title Incidence and control of fruit fly *Carpomyia vesuviana* Costa on ber *Zizyphus maurandia*
Year 1992
Source title Indian Journal of Plant Protection
Reference 20(2): 205

Abstract

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Author Bal JS; Kahlon PS; Jawanda JS; Sandhu SS (Editor)
Title Effect of pre-harvest spray of growth regulators at turning stage on the maturity of ber
Year 1992
Source title Acta Horticulturae
Reference 321: 318-325. 12 ref.

Abstract

The investigations were conducted on the effect of ethephon, SADH, morphactin and TIBA at colour break stage to enhance maturity and uniform ripening of ber cv. Umran. The maximum percent maturation and colour development was observed with higher concentration of ethephon 400 and 500 ppm; SADH 2000 and 3000 ppm and morphactin and TIBA 50 ppm. Maximum breadth and weight of the fruit was found with morphactin at 10 ppm. The specific gravity when approached less than one, the fruits were in harvest maturity and attained golden yellow to deep golden yellow colour. The highest organoleptic rating of the fruits was noted in ethephon 400-500 ppm, SADH 2000-3000 ppm and TIBA 50 ppm. The higher concentration of ethephon and SADH induced more increase in total soluble solids with the corresponding decrease in acidity. The total phenolics were high in vitamin C and sugars were greatly increased with ethephon treatments and the maximum contents were recorded with 500 ppm ethephon. Spraying with ethephon 400; 500 ppm; SADH 2000, 3000 ppm; TIBA 25, 50 ppm and morphactin 25, 50 ppm increased starch degradation. The maximum total carotenoids were found in fruits sprayed with SADH 3000 ppm and ethephon 500 ppm.

Author Bal, J. S.
Title Identification of ber (*Ziziphus mauritiana* Lamk.) cultivars through vegetative and
Year 1992
Source title Acta Horticulturae
Reference 245:
Abstract

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Author Bal, J. S., P. S. Kahlon, J. S. Jawanda and S. S. Sandhu
Title Effect of pre-harvest spray of growth regulators at turning stage on the maturity of
Year 1992
Source title Acta Horticulturae
Reference 318:
Abstract

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Author Banker GJ; Prasad RN
Title Relationship between stomatal distribution and growth of ber rootstocks.
Year 1992
Source title Indian Journal of Horticulture
Reference 49(2): 169-171. 7 ref.
Abstract

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Author Bao, T. J., J. Xiaoqin and G. Della Strada
Title Il giuggiolo (*Ziziphus jujuba* Mill.) in cina
Year 1992
Source title Informatore Agrario
Reference 48(43): 45
Abstract

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Author Beniwal LS; Chauhan KS; Singhrot RS
Title Effect of various transplanting treatments and time of transplanting on bare-rooted
Year 1992
Source title Haryana Journal of Horticultural Sciences
Reference 21(3-4): 152-160. 4 ref.
Abstract

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Author Beniwal, L. S., K. S. Chauhan and R. S. Singhrot
Title Effect of various transplanting treatments and time of transplanting on bare rooted
Year 1992
Source title Haryana Journal of Horticultural Sciences
Reference 21(3/4): 152
Abstract

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Author Biagi P; Nisbet R
Title Environmental history and plant exploitation at the aceramic sites of RH5 and RH
Year 1992
Source title Bulletin de la Societe Botanique de France - Actualites Botaniques
Reference 139(2-4): 571-578

Abstract

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Author Bimlendra K; Toky OP
Title Seedling growth of some important fuelwood species of semi-arid climate in north
Year 1992
Source title Myforest
Reference 28(2): 225-230. 4 ref.

Abstract

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Author Bimlendra K; Toky OP
Title Seedling growth of some important fuelwood species of semi-arid climate in north
Year 1992
Source title Myforest
Reference 28(2): 225-230

Abstract

Growth data are given for 9-month-old saplings of 20 species - 4 *Acacia* spp., 2 *Albizia* spp., 3 *Cassia* spp., *Cordia myxa* (3 provenances), *Dendrocalamus hamiltonii*, *Leucaena leucocephala*, *Parkinsonia aculeata*, *Pongamia pinnata*, 2 *Prosopis* spp., *Melia azedarach*, *Tamarindus indica*, *Terminalia tomentosa* and *Zizyphus mauritiana* [*Zizyphus mauritiana*] planted under semiarid conditions in Haryana, and raised from polybag stock.

Author Bimlendra K; Toky-OM; Singh P
Title Performance of tree species in relation to water requirement in semi-arid regions o
Year 1992
Source title Myforest
Reference 28(2): 235-240

Abstract

The results are reported of a nursery trial over 7 months with 14 species. Seeds were sown on 20 March 1987 in polypots in soil/FYM (3:1). Only one seedling was allowed to grow in each pot. Seedlings were watered uniformly for the first 45 days and 4-weekly thereafter. Watering was withheld from 30 August, and growth measurements and leaf water potential recorded on 11 October. On the basis of these data species were divided into 4 groups: (1) favourable plant water relations and high productivity, (2) unfavourable plant water relations and high productivity, (3) favourable plant water relations and low productivity, and (4) unfavourable plant water relations and low productivity. Five species (*Acacia nilotica*, *Albizia lebbeck*, *Cassia siamea* and *Cordia myxa*) fell into the first 2 classes and are, therefore, recommended for planting in semiarid regions in Haryana. The other species tested were *Acacia cupressiformis*, *Albizia procera*, *Cassia glauca*, *Dalbergia sissoo*, *Erythrina indica*, *Melia azedarach*, *Pithecellobium dulce*, *Prosopis juliflora*, *Tamarindus indica* and *Zizyphus mauritiana* [*Zizyphus mauritiana*].

Author Chattopadhyay PK; Dey SS
Title Note on standardisation of some aspects of ber propagation
Year 1992
Source title Indian Journal of Horticulture
Reference 49(1): 47-49. 4 ref.

Abstract

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Author Chattopadhyay, P. K. and S. S. Dey
Title Effect of sowing methods on germination, buddable seedlings, budding and transp
Year 1992
Source title Environment and Ecology
Reference 10(4): 996

Abstract

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Author Chovatia RS; Patel DS; Patel AT; Patel GV
Title Growth, yield and physico-chemical characters of certain varieties of ber (*Zizyphu*
Year 1992
Source title Gujarat Agricultural University Research Journal
Reference 17(2): 56-60. 10 ref.
Abstract

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Author Chovatia, R. S., D. S. Patel, G. V. Patel and N. K. Kalyanasundaram
Title Effectiveness of mulches on ber (*Zizyphus mauritiana* Lamk) cv umran under dryl
Year 1992
Source title Annals of Arid Zone
Reference 31(4): 301
Abstract

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Author Dash AK; Nayak BK; Dash MC
Title The effect of different foodplants on cocoon crop performance in the Indian tasar
Year 1992
Source title Journal of Research on the Lepidoptera
Reference 31(1/2): 127-131. 11 ref.
Abstract

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Author Dhatt AS; Grewal GPS; Chahil BS; Dhillon DS (Editor) Subhadrabandhu S
Title Removal of NPK by Kinnow mandarin and Umran ber.
Year 1992
Source title Acta Horticulturae
Reference 321,:541-544. 6 ref.
Abstract

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Author Diwakar Hegde; Sharma VP
Title A numerical taxonomic study of the ber *Zizyphus* spp
Year 1992
Source title New Botanist
Reference 19(1-4): 21-26. 9 ref.
Abstract

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Author Gupta OP; Siddiqui S; Pareek OP
Title Post-harvest handling of ber (*Zizyphus mauritiana* Lamk.) - a review
Year 1992
Source title Agricultural Review
Reference 13(4): 199-208
Abstract

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Author Gupta OP; Siddiqui S; Pareek OP
Title Post-harvest handling of ber (*Zizyphus mauritiana* Lam.)
Year 1992
Source title Agricultural Reviews of the Agricultural Research Communications Centre India
Reference 13(4): 199
Abstract -

Author Hakim Shah; Bakhsh MI
Title Tree growth on the farmlands of the Punjab.
Year 1992
Source title Pakistan Journal of Forestry
Reference 42(1): 44-55. 6 ref.
Abstract -

Author Han BH; Park MK; Han YN; Park MH; Park JH; Kim YC
Title Chemical and biochemical studies on sedative alkaloids from *Zizyphus* plants
Year 1992
Source title Abstracts of Papers of the American Chemical Society
Reference 203(2): 484
Abstract -

Author Karale AR; Keskar BG; Dhawale BC; Kale PN
Title Fruit set in intervarietal hybridization in ber
Year 1992
Source title Journal of Maharashtra Agricultural Universities
Reference 17(1): 140-141. 6 ref.

Abstract

Data are presented on the fruit and seed characteristics and the organoleptic qualities of 12 Ziziphus mauritiana cvs. HB1 and LB had excellent flavour, and that of HB2, KB1, SB, and SB2 was rated good. HB!, LB and SB! Were resistant to fruit fly [Anastrepha sp.]

Author Kaushik A; Dixon RK; Mukerji KG
Title Vesicular arbuscular mycorrhizal relationships of Prosopis juliflora and Zizyphus
Year 1992
Source title Phytomorphology
Reference 42(1-2): 133-137. 7 ref.

Abstract

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Author Khan MSI; Hossain AKMA (Editor) Subhadrabandhu S
Title Effect of pruning on growth, yield and quality of ber.
Year 1992
Source title Acta Horticulturae
Reference 321: 684-690. 14 ref.

Abstract

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Author Kulkarni AR; Bhat NR; Supe VS; Kale PN
Title Influence of storage conditions and presowing treatments on germination and seed
Year 1992
Source title Journal of Maharashtra Agricultural Universities
Reference 17(1): 132-133. 2 ref.
Abstract

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Author Kumar S; Ojha CM; Deen B; Awasthi OP
Title Potentiality of ber (*Zizyphus mauritiana* Lamk) cultivars for candy making
Year 1992
Source title Progressive Horticulture
Reference 24(1/2): 74
Abstract

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Author Kumari Bimlendra; Toky OM; Phool Singh
Title Performance of tree species in relation to water requirement in semi-arid regions o
Year 1992
Source title Myforest
Reference 28(2): 235-240. 7 ref.
Abstract

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Author Kurihara Y
Title Characteristics of antisweet substances, sweet proteins, and sweetness inducing pr
Year 1992
Source title Critical Reviews in Food Science and Nutrition
Reference 32(3): 231-252
Abstract

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Author Lee JS; Choi MJ
Title A study on boron toxicity of chinese jujube (*Zizyphus jujuba* Mill)
Year 1992
Source title Journal of the Korean Society for Horticultural Science
Reference 33(3): 273
Abstract

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Author Mawani PB; Singh SP
Title Effect of method and time budding on growth and development of bud-grafts in be
Year 1992
Source title Horticultural Journal
Reference 5(2): 79-83. 3 ref.
Abstract

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Author Mawani PB; Singh SP
Title Effect of method and time of budding on budding success in ber (*Zizyphus maurit*
Year 1992
Source title Horticultural Journal
Reference 5(1): 31-35. 13 ref.

Abstract

T-budding with the cv. Umran was carried out on 27 July or 11 September and 3 after-budding treatments were applied. Budding success was greater in July and greatest in treatments where the top of the rootstock was removed 8 days after budding. Maximum scion growth was obtained when the top was removed 4 days after budding. Partial removal of the top resulted in minimum scion g r o w t h .

Author Milimo PB; Dick J McP; Munro RC
Title Domestication of trees in semi-arid East Africa: the current situation
Year 1992
Source title Tropical trees: the potential for domestication and the rebuilding of forest resourc
Reference RRB Leakey & AC Newton (Eds.), ITE Symposium No. 29, ECTF Symposium N

Abstract

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Author Nasri-Ayachi MB; Nabli MA
Title Pollen wall ultrastructure and ontogeny in *Zizyphus lotus* L. (Rhamnaceae)
Year 1992
Source title Sporoderm ontogeny and differentiation, Aix-en-Provence; France
Reference Elsevier, 85-98 pp

Abstract

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Author Ragumoorthi KN; Arumugam R
Title Chemical control of ber fruitfly *Carpomyia vesuviana* Costa
Year 1992
Source title Indian Journal of Plant Protection
Reference 20(1): 32
Abstract

-

Author Ram Kishan; Godara NR
Title Effect of storage conditions on shelf-life of Gola ber (*Zizyphus mauritiana* Lamk.)
Year 1992
Source title International Journal of Tropical Agriculture
Reference 10(4): 282-287. 6 ref.
Abstract

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Author Ram Kishan; Godara NR
Title Effect of post-harvest treatment of different chemicals on the shelf-life of Gola be
Year 1992
Source title International Journal of Tropical Agriculture
Reference 10(4): 288-292. 5 ref.
Abstract

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Author Raushan Ullah GM; Bhoyian AM
Title Morphology and durations of various life-stages of female Planococcus lilacinus (
Year 1992
Source title University Journal of Zoology, Rajshahi University
Reference 10-11: 59-69
Abstract

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Author Sandhbhor DR; Desai UT; Kale PN
Title Effects of gibberellin, cytokinin and polyethylene packaging on market qualities o
Year 1992
Source title Journal of Maharashtra Agricultural Universities
Reference 17(1): 148-149. 4 ref.
Abstract

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Author Sandhu AS; Minhas PPS; Grewal GPS
Title Influence of time of pruning on growth, flowering, fruiting and fruit quality of um
Year 1992
Source title Haryana Journal of Horticultural Sciences
Reference 21(1/2): 1
Abstract

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Author Sandhu AS; Minhas PPS; Grewal GPS
Title Influence of time of pruning on growth, flowering, fruiting and fruit quality of um
Year 1992
Source title Haryana Journal of Horticultural Sciences
Reference 21(1-2): 1-5. 8 ref.
Abstract -

Author Sanjeev Kumar; Ojha CM; Bhagwan Deen; Awasthi OP; Nainwal NC
Title Potentiality of ber (*Zizyphus mauritiana* Lamk.) cultivars for candy making.
Year 1992
Source title Progressive Horticulture
Reference 24(1-2): 74-78. 11 ref.
Abstract -

Author Shaikh MHA
Title Ecological approach to waste land development.
Year 1992
Source title Myforest
Reference 28(1): 123-128. 1 ref.
Abstract -

Author Sharma A
Title Seasonal incidence of *Larvacarus transitans* on *Zizyphus* in Rajasthan
Year 1992
Source title Annals of Arid Zone
Reference 31(3): 231
Abstract

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Author Shergill TS; Harmail Singh; Mehrotra NK
Title Economics of use of herbicides in ber [*Zizyphus mauritiana*] orchard
Year 1992
Source title Indian Journal of Horticulture
Reference 49(4): 328-331. 7 ref.
Abstract

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Author Singh J
Title Cost and Return from Orchards in Punjab
Year 1992
Source title Acta Horticulturae
Reference 296: 265-271
Abstract

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Author Singh K; Salim Siddiqui; Gupta OP
Title Suitability of various packages for transportation of ber (*Zizyphus mauritiana* La
Year 1992
Source title Haryana Journal of Horticultural Sciences
Reference 21(1-2): 6-10. 7 ref.
Abstract -

Author Singh K; Siddique S; Gupta OP
Title Suitability of various packages for transportation of ber (*Zizyphus mauritiana* La
Year 1992
Source title Haryana Journal of Horticultural Sciences
Reference 21(1/2): 6
Abstract -

Author Singh RR; Hooda MS
Title Growth of multipurpose tree species in Haryana, India.
Year 1992
Source title Nitrogen Fixing Tree Research Reports
Reference 10: 57-58. 5 ref.
Abstract -

Author Singh SP
Title Budding in some fruit crops - a review.
Year 1992
Source title Advances in Horticulture and Forestry
Reference 2: 84-97. 36 ref.
Abstract

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Author Tagiev TM
Title Promising areas for cultivating jujuba in Azerbaijan. [Russian]
Year 1992
Source title Sadovodstvo i Vinogradarstvo
Reference 1: 19-20
Abstract

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Author Tourn GM; Tortosa RD; Medan D
Title Rhamnaceae with multiple, lateral buds - an architectural analysis
Year 1992
Source title Botanical Journal of the Linnean Society
Reference 108(3): 275-286
Abstract

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Author Verma KS; Sanjiv Kumar; Cheema SS
Title Some physico-pathological studies on *Isariopsis indica* var. *zizyphi*: the incitant of
Year 1992
Source title Plant Disease Research
Reference 7(2): 210-214. 5 ref.

Abstract

Changes in the size, weight, specific gravity, colour and shape of *Ziziphus mauritiana* fruits during development and ripening are reported.

Author Yadav GP; Mishra RM; Bhatnagar S
Title Phenological patterns of four species of *Zizyphus*.
Year 1992
Source title Indian Journal of Ecology
Reference 19(2): 146-149. 4 ref.

Abstract

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Author Yoshikawa K; Shimono N; Arihara S
Title Antisweet natural products. Vi. Jujuba saponins iv, v and vi from *Zizyphus jujuba*
Year 1992
Source title Chemical and Pharmaceutical Bulletin
Reference 40(9): 2275

Abstract

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Author Bal, J. S., P. S. Kahlon, J. S. Jawanda and S. S. Sandhu
Title Effect of pre-harvest spray of growth regulators at turning stage on the maturity of
Year 1991
Source title Frontier in Tropical Fruit Research, Pattaya City; Thailand
Reference Ishs, 318-325 pp
Abstract

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Author Bangarwa KS; Singh RR; Ravi Kumar
Title Survival of different tree species in arid India.
Year 1991
Source title Nitrogen Fixing Tree Research Reports
Reference 9: 3
Abstract

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Author Bhatnagar, P. and R. K. Lakra
Title Biology and control of hairy caterpillar, *Euproctis fraterna* Moore (Lepidoptera: L
Year 1991
Source title Bioecology and control of insect pests, Muzaffarnagar; India
Reference The Society, 150-155 pp
Abstract

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Author Chauhan KS; Pundir JPS; Shyam Singh
Title Studies on the mineral composition of certain fruits.
Year 1991
Source title Haryana Journal of Horticultural Sciences
Reference 20(3-4): 210-213. 4 ref.

Abstract

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Author Chauhan KS; Pundir JPS; Singh S
Title Studies on the mineral composition of certain fruits
Year 1991
Source title Haryana Journal of Horticultural Sciences
Reference 20(3-4): 210-213

Abstract

The mineral composition of the following fruits was determined: guava cultivars Allahabad Sefeda and Red Fleshed; banana cv. Harichal, ripe and unripe; grapefruit cultivars Ruby, Marsh Seedless and Duncun; lemon cv. Seedless; lime cv. Kagzi; China orange; sweet orange cultivars Malta, Valencia, Washington, Navel and Mosambi; custard apple [*Annona reticulata*]; pomegranate; aonla [*Phyllanthus emblica*] cv. Baranasi; grape cv. Anab-e-Shahi; tamarind cultivars White Pulp and Red Pulp; sapota [*sapodilla*] cv. Cricket Ball; papaya [pawpaw] cv. Coorrg (ripe and unripe); and ber (*Zizyphus* [*Ziziphus*] *mauritiana*). Fruits with high mineral concentrations were ripe and green papaya, grapefruit, sweet orange and guava. Banana, custard apple and aonla were generally poor in mineral.

Other species included: *Phyllanthus emblica*, *Musa*, *Citrus paradisi*, *Citrus*, *Punica granatum*, *Vitis*, *Manilkara zapota*, *Carica*, *Psidium*.

Author Dhatt, A. S., G. P. S. Grewal, B. S. Chahil and D. S. Dhillon
Title Removal of npk by kinnow mandarin and urman ber
Year 1991
Source title Frontier in Tropical Fruit Research, Pattaya City; Thailand
Reference Ishs, 541-544 pp

Abstract

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Author Eromosele IC; Eromosele CO; Kuzhkuzha DM
Title Evaluation of mineral elements and ascorbic acid contents in fruits of some wild p
Year 1991
Source title Plant Foods for Human Nutrition
Reference 41(2): 151-154

Abstract

Ascorbic acid and mineral contents were determined in the mesocarps of 14 wild fruits of Nigeria. Data are tabulated for *Ziziphus spina[-]christi*, *Sclerocarya birrea*, *Haematostaphis berteri* [*H. barteri*], *Ximenia americana*, *Adansonia digitata*, *Annona senegalensis*, *Butyrospermum parkii* [*Vitellaria paradoxa*], *Zizyphus* [*Ziziphus*] *mauritiana*, *Phoenix dactylifera* [date], *Balanites aegyptiaca*, *Tamarindus indica* [tamarind], *Deterium* [*Detarium*] *microcarpum*, *Vitex doniana* and *Dialium guineense*. Concentrations of ascorbic acid in fruit samples were in the range 1.28 to 403.3 mg/100 mg FW. *Sclerocarya birrea* and *Adansonia digitata* had concentrations of 403.3 and 337.0 mg ascorbic acid/100 g, respectively. These 2 fruits are used, respectively, as sweeteners for many local foods and as curdling agents for milk. *Zizyphus mauritiana* contained the highest concentrations of Mg, at 227.0 mg/100 g. Values for P in the fruits were in the range 5 to 28 mg/100 g, which compare with values for P in bananas of 26 mg/100 g. Fe concentrations were in the range 1.07-6.30 mg/100 g, which are 2-5 times higher than the concentrations in oranges (0.2 mg/100 g) and mangoes (0.4 mg/100 g).

Author Gill AS; Roy RD; Bajpai CK
Title Performance of *Leucaena* in an agri-silvi-horticultural system.
Year 1991
Source title *Leucaena Research Reports*
Reference 12: 34-36

Abstract

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Author Hakim Shah; Bakhsh MI; Mohammed Amjad

Title Tree growth on farmlands of NWFP.

Year 1991

Source title Pakistan Journal of Forestry

Reference 41(2): 74-81. 4 ref.

Abstract

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Author Hiwale SS; Raturi GB

Title Determination of leaf area in jujube (*Ziziphus mauritiana*) using linear parameters

Year 1991

Source title Indian Journal of Agricultural Sciences

Reference 61(5): 335-336

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*], *Embllica 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) Underutilized 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*,

C o p a i f e r a , C a n a r i u m , A m y r i s , L a m i a l e s .

Author Khan SI; Amzad Hossain AKM
Title Effect of pruning on growth, yield and quality of ber
Year 1991
Source title Frontier in Tropical Fruit Research, Pattaya City; Thailand
Reference Ishs, 684-690 pp

Abstract

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Author Lakra RK; Sangwan MS; Zile Singh
Title Effect of application of some insecticides on the incidence of 'ber' fruit fly (Carpobrotus) (Diptera: Tephritidae)
Year 1991
Source title Narendra Deva Journal of Agricultural Research
Reference 6(1): 71-79. 15 ref.

Abstract

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Author Mizrahi Y; Cohen H; Gur D
Title Introduction and development of new subtropical fruits
Year 1991
Source title Israel Journal of Botany
Reference 40(3): 261-262

Abstract

During a continuing introduction programme in Israel, the following tree species were found to grow satisfactorily under the conditions of the Jordan Valley, Negev and Arava areas and produce fruits of commercial value: *Sclerocarya caffra*, *Casimiroa edulis*, *Manilkara zapota*, *Diospyros digyna* [D. ebenaster], *Ziziphus mauritiana* and *Ricinodendron rautanenii*. Additionally, 6 columnar cactus species were propagated; their fruits had outstanding colour and flavour and the crisp seeds were edible. They comprised *Pachycereus pecten-aboriginum*, *P. pringlei*, *Stenocereus gummosus* [*Lemaireocereus gummosus*], *S. [L.] thurberi*, *S. [L.] griseus* and *Cereus peruvianus*. The fruits of *C. peruvianus* were large and had a long shelf-life.

Author Pandey SD; Pathak RK; Dwivedi R
Title Effect of sodicity and salinity levels on chlorophyll, free proline and amino acid c
Year 1991
Source title Horticultural Journal
Reference 4(1): 33-36. 15 ref.
Abstract

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Author Saha AK; Bhattacharya C; Sarker G
Title Evaluation of different physiological properties of ber (*Zizyphus mauritiana* Lamk
Year 1991
Source title National Symposium on Plant Sciences in the Nineties, Kalyani, India
Reference Kalyani, 308-312 pp
Abstract

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Author Schirarend C
Title The systematic wood anatomy of the Rhamnaceae Juss. (Rhamnales) .1. Tribe Ziz
Year 1991
Source title IAWA Bulletin
Reference 12(4): 359-388
Abstract

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Author Shah BH
Title Some observations on the effect of forest tree species on ground vegetation at Pab
Year 1991
Source title Pakistan Journal of Forestry
Reference 41(4): 173-177. 6 ref.
Abstract

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Author Sharma A
Title Lavacarus transitans, a serious pest of Ziziphus in India
Year 1991
Source title Modern Acarology
Reference 1&2: A 539-A 542, Dusbabek_F, Bukva_V, 8th International Congress of Acarolo
Abstract

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Author Toky OP; Bishat RP; Singh SP
Title Bifurcation ratio of some important trees of arid zone of north-western India.
Year 1991
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The effect of infestation by *Kerria lacca* on the quantity and quality of fruit yield in *Ziziphus mauritiana* was studied in Haryana, India. An average of 20.8% trees was infested at the 12 localities investigated. An infestation of 5000 nymphs/100 cm twig caused a weight loss in fruits of 52.5-58.5%. Of the 3 varieties studied, Gola was the most susceptible to attack, followed by Kaithli and Umran. A large reduction in the total soluble sugar content of infested fruits (average 53.5%) was also recorded.

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