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QUANTIFICATION OF LUPEOL IN SELECTED JUICY CULTIVARS OF MANGO (*MANGIFERA INDICA* L.) POPULARLY GROWN IN TELANGANA REGION

Soujanya B*, Kiran K. Adapa,² Sreedhar M,³ Aparna K,³ and Ravinder Reddy K⁴

^{1&4}Sri Konda Laxman Telangana State Horticultural University, Rajendranagar 500030.

²Fruit Research Station, Sangareddy, 502 001 India.

³MFPI-Quality Control Laboratory, Rajendranagar, Hyderabad 500030

Email: battulasoujanya2@gmail.com

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Abstract : The mango (*Mangifera indica* L.) is a juicy stone fruit (drupe) and also one of the most important climacteric tropical fruits in the world. Numerous phytochemicals are present in mango peel and pulp, such as triterpene, lupeol which is under basic research for its potential biological effects. Present investigation about “Quantification of lupeol in selected juicy cultivars of mango (*Mangifera indica* L.) Popularly grown in Telangana region” quantified by High performance Liquid Chromatography (HPLC) method. Experiment was designated with two factorial completely randomized design and executed with the objectives of estimation of lupeol in selected juicy varieties and estimation of lupeol in selected juicy varieties during storage at ambient conditions. Among the varieties significantly chinnarasam recorded highest amount of lupeol (67.24±8.77 µg/100g). While lowest amount of lupeol was recorded in Pandurivari Mamidi (8.45±0.10 µg/100g). Among the storage days significantly highest amount of lupeol was recorded in 4th day of storage (38.63±15.93 µg/100g). While 8th and 12th day of storage were similar amount of lupeol content 29.73±5.93 µg/100g 29.53±5.94 µg/100g respectively. Lupeol content varies among the cultivars and storage days. Showed maximum amount of lupeol content at its 4th day of storage.

Keywords: HPLC (High performance Liquid Chromatography), Juicy cultivars, Lupeol, Mango, Triterpene

STUDY OF MARKET STRUCTURE OF HYBRID COTTON SEEDS IN NORTH KARNATAKA

Srividharani S. Sajjan*¹ and N.M. Kerur²

¹Department of Agribusiness Management, University of Agricultural Sciences, Dharwad, Karnataka, India.

²Department of Agribusiness Management, University of Agricultural Sciences, Dharwad, Karnataka, India.

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Abstract: Cotton often referred as “White gold” or the “King of Fibres” enjoys a predominant position amongst all cash crops in India and is closely linked to human civilization itself. *Bt* cotton, a transgenic plant produces an insect controlling protein in Cry1A(c), the gene which has been derived from the naturally occurring bacterium, *Bacillus thuringensis* subsp. kurstaki (B.t.k.). The cotton seed industry has emerged as an important component in the seed market basically due to its ability for development of hybrids and diversity of production. A multistage random sampling was adopted as appropriate sampling procedure for the study. The data on area under cotton in Karnataka was collected, which comprising of two northern districts of Karnataka namely Dharwad and Haveri. From each district 10 dealers were selected for the study, Hence, a total of 20 dealers were selected to elicit information required for the study. Lorenz Coefficient of inequality for Dharwad district was slightly high (0.561) and for Haveri district was high (0.60) indicating Monopolistic competition in the both markets.

Keywords: *Bt* cotton, Gini co-efficient ratio, Multistage random sampling, Lorenz Coefficient

MITOTIC AND MEIOTIC STUDIES IN TWO CULTIVARS OF *CORIANDRUM SATIVUM* L. (APIACEAE)

Aditi Saha*

*Department of Botany, Narasinha Dutta College, 129, Belilious Road, West Bengal, Howrah 711101,
West Bengal, India*

Email: sahaaditi2007@rediffmail.com

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Abstract: Mitotic and meiotic chromosome studies are performed in two cultivars namely TNP(D)92 and NP(D)95 of *Coriandrum sativum* L. (Apiaceae) with an objective of proper cataloguing of the germplasm under study from the cytogenetical perspectives for better exploration in crop improvement. Karyomorphological details and meiotic chromosome configurations ($2n=22$) are discussed.

Keywords: Mitotic, Meiotic, Chromosome, *Coriandrum sativum*

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EFFECT OF AMBIENT WEATHER ON POPULATION DYNAMICS OF MAJOR INSECT PESTS OF TAMARIND

Akhilesh Kumar*, A.K. Gupta and Manoj Kumar Painkra

*Department of Entomology, Indira Gandhi Krishi Vishwavidyalaya, Raipur
(Chhattisgarh), India 492012*

Email: akhilesh.ento17@gmail.com

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Abstract: The present investigation was conducted at Shaheed Gundadhoor College of Agriculture and Research Station, Jagdalpur, Chhattisgarh during *kharij- rabi*, 2015–16 to see the effect of different abiotic factor on major insect pests of tamarind. Three species of different insect pests *viz.* fruit borer, mealy bug, scale insect was recorded as a major pests. Maximum fruit borer infestation of 19.91 infested pods / unit area was recorded during second week of October. Peak population of mealy bugs was recorded during second week of October with 29.58 nymphs and adults / unit area. Two peaks of scale insects were observed, first in the fourth week of September followed by second week of November with 28.83 and 29.95 scale insects / unit area. Morning relative humidity around 95 per cent and evening relative humidity around 60 per cent were found congenial for the fruit borer multiplication on tamarind. Mealy bug and scale insects were also significantly positively influence with morning relative humidity.

Keywords: Abiotic factor, Insect pests, Population dynamics, Peak population, Tamarind

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OCCURRENCE OF MYCORRHIZA IN A MOSS *ENCALYPTA VULGARIS* HEDW

Anu Sharma* and Anima Langer

University of Jammu, Department of Botany, Jammu 180 006, J&K, India

Email: anu4botany@gmail.com

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Abstract: Present communication deals with the study on the occurrence of mycorrhiza in mosses. Out of 34 moss taxa screened from diverse habitats in Jammu (J&K state), only one population of *Encalypta vulgaris* Hedw. collected from Kishtwar was found to be mycorrhizal. It seems to be the first report on the occurrence of mycorrhiza in moss rhizoids.

Keywords: *Encalypta*, Moss, Mycorrhiza, Rhizoids

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PERFORMANCE OF SUCCESSFUL COMBINATION OF THE FRUITS OF WILD

POMEGRANATE (*PUNICA GRANATUM* L.) IN HIMACHAL PRADESH

Thiyam Jefferson Singh* and Tara Gupta

Dr. Y. S. Parmar University of Horticulture and Forestry Nauni, Solan-173 230 (HP)
Email : lampardleo@gmail.com

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Abstract: Wild Pomegranate (*Punica granatum* L.) is one of the oldest known edible fruits which originated in Iran and surrounding areas, and there from spread to other regions. *P. granatum* is a predominant member of family Punicaceae which comprises of only two species. The present study was aimed to document the genetic variability in wild crossed fruits of pomegranate in Himachal Pradesh On the basis of morphological and physicochemical characters, 22 crosses were obtained after hybridization between screened parents in adjoining areas of the campus of Dr. Y.S. Parmar U.H.F. Nauni, Solan, H.P. in 2015-2016. Remarkable variability was observed amongst the genotypes for traits fruit length, diameter and TSS, reducing sugars, total sugar and non reducing sugar. On the basis of the performance, best genotypes will be selected for use in future pomegranate improvement programme.

Keywords: *Punica granatum* L., Variation, Morphological, Physicochemical characters

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PERFORMANCE OF SOYBEAN (*GLYCINE MAX* L MERRILL) VARIETIES UNDER DIFFERENT PLANTING DATES

C. Ramesh Naidu, G. Krishna Reddy, V. Sumathi and P. Venkatrama Muni Reddy

Department of Agronomy, S.V. Agricultural college, Acharya N.G. Ranga Agricultural University,
Tirupati - 517 502
Email: naiduramesh060@gmail.com

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Abstract: The experiment was conducted at S.V Agricultural College, Tirupati (Andhra Pradesh) during rabi 2015-16 to study the effect of time of sowing and varieties on the performance of soybean. It was comprised of 16 treatments with four sowing dates (16th September (D₁), first October (D₂), 16th October (D₃) and 1st November (D₄) and four varieties (Basar, JS-93-05, Bheem and JS-335) replicated thrice. 16th September (D₁) sown crop recorded highest seed yield which was comparable to 1st October (D₂). Lowest seed yield was recorded with latest sown crop (1st November). Variety JS-335 (V₄), which was on par with Basar (V₁) recorded highest soybean yield. Variety JS-93-05 (V₂) recorded lower seed yield which was on par with Bheem (V₃).

Keywords: Sowing time, Soybean, Varieties

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WEEDS AFFECTING THE PRODUCTIVITY OF RICE: A PERSPECTIVE ASSESSMENT BY THE FARMERS OF PLATEAUX (PAT AREAS) OF NORTHERN HILLS AGRO-CLIMATIC ZONE OF CHHATTISGARH

Subodh Kumar Pradhan*, M.A. Khan, M.L. Sharma and S. Narbaria

Department of Agricultural Extension, IGKV, Raipur (C.G.), 492012
Email: kumarsubodh7777777@gmail.com

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Abstract: Chhattisgarh has a tremendous agricultural potential with a diversity of soil and climate, mountains, plateau, rivers, natural vegetation and forest. Diversified crops and cropping systems are the typical characteristics of Chhattisgarh and rice is the major crop of the region. Due to the variations in terms of soil topography, rainfall intensity and distribution, irrigation, adoption of agricultural production system socio-economic conditions of the farmers, there are the variation in

practices and varieties as well as the productivity of rice in these regions. Weed is one of the important factor caused reduction in the productivity of rice. In this perspective the present study was undertaken in the plateaux (Pat areas) of Northern Hills Agro-climatic Zone of Chhattisgarh state with data collected from 240 farmers. The findings shows that, majority of the respondents perceived that Samna (*Echinochloa spp.*), Bhorandi/Badauri (*Ischaemum rugosum*), wild rice (*Oryza spp.*), Motha (*Cyperus spp.*), Kankauwa (*Commelina bengalensis*), Machhli ankh (*Panicum repens*), Banmirchi (*Sphenoclea zeylanica*) and Masariya (*Corchorus spp.*), in order are the major weeds causing yield loss in rice. Accordingly it was found that the severity of *Echinochloa spp.* was highest. The yield loss caused due to these weeds is up to 75 per cent perceived by few farmers. Remarkably, it was found that almost all farmers follows the traditional weed management practices and only few rice growers were using chemicals for the management of weeds. It shows a complex situation which has to be overcome by incorporating strategic extension approaches so that the weed management can be done effectively to increase the productivity and profitability from rice cultivation.

Keywords: Rice, Plateaux, Weed control, Productivity, Yield loss

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PHYSIO-CHEMICAL PROPERTIES OF PUMMELO [*CITRUS GRANDIS* (L.) OSBECK] GROWN UNDER NORTHERN PARTS OF WEST BENGAL

Nilesh Bhowmick, Arghya Mani*, Prodyut Kumar Paul and V.S.S.V. Prasanna

*Department of Pomology and Post-harvest Technology, Uttar Banga Krishi Viswavidyalay,
Pundibari, Cooch Behar, West Bengal-736165*

**Present address-Department of Post-harvest Technology, Bidhan Chandra Krishi Viswavidyalaya,
Mohanpur, Nadia, West Bengal-714252
Email: nileshbhowmick@gmail.com*

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Abstract: A study was conducted to identify the elite pummelo genotypes among its natural population from different locations of North Bengal. The fruits from 22 different accessions were collected in ripe condition and their physio-chemical characteristics were assayed. The study showed that a wide variability exists among different fruit samples collected from distinct locations. The result shows that the fruit skin colour shows variation from greenish-yellow to orange, most of the fruits are round shaped whereas some fruits are oval as well. The placental tissues shows colour variability from whitish to pink and even reddish as well. The taste of the juice are classified as sour in some occasions to sweet in many occasions and very sweet in few occasion. Accession-17 showed the maximum average weight of fruit whereas the minimum fruit weight was observed in accession-16. The length and breadth of the fruit was found maximum in accession 17 and 20 and minimum in accession 14 and 11 respectively. The peel-pulp ratio was maximum in accession 13 and minimum in accession 3. Juice content was found maximum in accession 4 and minimum in accession 3. The TSS was found maximum in accession 15 and minimum in accession 13.

Keyword: Pummelo, Variability, Physio-chemical, North Bengal

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EFFECT OF METHOD OF PLANTING AND NUTRIENT MANAGEMENT ON YIELD OF SHORT GRAIN AROMATIC RICE (*ORYZA SATIVA* L.)

D.K. Gupta*

*RMD College of Agriculture & Research Station, Ajirma,
Ambikapur, Surguja (Chhattisgarh) – 497001
Department of Agronomy,
Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.), 492 012 India
Email: gupta_dinesh11@yahoo.co.in*

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Abstract: The field experiment on “Effect of method of planting and nutrient management on yield of short grain aromatic rice (*Oryza sativa* L.)” was conducted during *kharif* seasons of 2017 at the Research Farm, IGKV, RMD College of Agriculture & Research Station Ambikapur, Surguja (Chhattisgarh). Treatments comprised of two method of planting viz.,

SRI and normal transplanting as main plot treatments, two nutrient management practices viz. RDF- 100% inorganic, RDF-150% through 50% inorganic + 50% organic as sub-plot and 5 varieties in sub-sub plot during *khariif* seasons in split-split plot design with three replications. The scented rice yields are stagnating or declining in post green revolution era mainly due to imbalance in fertilizer, soil degradation, type of cropping system practiced, lack of suitable rice genotypes and other agro-techniques. Partial substitution of chemical fertilizer with organic sources of nutrients is useful in different rice-based cropping systems. The use of excessive chemical fertilizer & pesticide are causing environmental hazard. It is therefore necessary to develop a suitable production system in this context proper selection of varieties, optimum density (spacing) per unit area and appropriate nutrient management are important for achieving higher yields. The Planting method in SRI practices the number of tiller was significantly higher than normal planting and non-significantly higher with plant height, length of panicle and 1000-grain weight, grain yield and biological yield. SRI planting method recorded higher net return and B: C ratio (Rs. 57869 ha⁻¹ and 1.54) lowest in normal planting (Rs. 53349 ha⁻¹ and 1.35). In case of nutrient management practices the application of 150% NPK of RDF (50% inorganic + 50% organic) the plant height and no. of grain per panicle were significantly higher than 100% NPK of RDF (100% inorganic) and non-significantly higher with total no. of tiller, effective tiller, length of panicle and 1000-grain weight, grain yield and biological yield. 100% NPK of RDF recorded higher net return and B: C ratio (Rs. 57201 ha⁻¹ and 1.55) than 150% NPK of RDF (Rs. 54018 ha⁻¹ and 1.35). The five varieties, Badshahbhog selection-1, Vishnubhog selection-1, Dubraj selection-1, Tarun bhog selection-1 and CG Sugandhit bhog selection-1 exhibited differences in growth, yield attribution and finally grain & economics. Rice variety vishnubhog selection-1 had significantly tallest plants while CG. sugandhit selection-1 had the shortest plants. The number of total tillers per m² and effective tillers per plant in CG.sugandhit selection-1 were significantly higher and at par with badshahbhog selection-1 and vishnubhog selection-1 but 1000-grain weight, panicle length were significantly higher under vishnubhog selection-1. In case of number of grains per panicle was higher under CG.sugandhit selection-1 over other varieties. Rice variety CG sugandhit bhog selection-1 recorded significantly higher grain (42.74 q ha⁻¹) and biological yield (123.04q ha⁻¹) over dubraj selection-1 (grain 32.42 ha⁻¹) and biological yield 100.07 ha⁻¹) but at par with vishnubhog selection-1(42.47 q ha⁻¹ and 124.73 q ha⁻¹), tarun bhog selection-1(37.91 q ha⁻¹ and 122.13 q ha⁻¹) and badshahbhog selection-1(37.0 q ha⁻¹ and 109.0 q ha⁻¹). CG sugandhit bhog selection-1 recorded higher net return and B:C ratio (Rs. 65323 ha⁻¹ and 1.71) lowest in dubraj selection-1 (Rs. 40947 ha⁻¹ and 1.41).

Keywords: Nutrient management, Aromatic rice, Grain