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Contents

RESEARCH ARTICLES

A preliminary survey of ethnomedicinal flora along pir panjal gradient (Kashmir-Himalayas), Aharbal Kulgam (J&K UT), India

—**Shakir Ahmad Mochi and Muzafar Riyaz**----- 891-902

Performance of strawberry cultivars for growth, yield and quality under naturally ventilated polyhouse conditions

—**Appani Laxman Kumar, K. Vanajalatha, P. Prasanth, Veena Joshi, D. Saida Naik and D. Srinivasa Chary**----- 903-909

Effect of nutrient management on growth, yield, uptake of nutrients and residual soil fertility in *Kharif* sesame (*Sesamum indicum* L.) under organic farming

—**A.K. Prajapati, D.M. Patel, D.K. Patel and P.A. Prajapati**----- 911-916

Efficacy of bio-rational insecticides against the management of Brinjal shoot and fruit borer

—**Diendra Singh Jagat, G.P. Painkra, K.L. Painkra and P.K. Bhagat**----- 917-922

Development of crop coefficient of Chilli grown under Polyhouse for the semi-arid region

—**Arunadevi, K., Ashok, A.D. and Ramachandran, J.**----- 923-927

Effect of different storage temperature on physico-chemical and sensory attributes of Ber fruit

—**Laxman Jat, Shreedar Singh Lakhawat, Suman Gathala and Virendra Singh**----- 929-933

In vitro evaluation of different fungicides and organic amendments against *Rhizoctonia bataticola* causing dry root rot of groundnut

—**Y. Sindhu Keerthana, T. Srinivas, R. Sarada Jayalakshmi Devi and A. Sri Vidhya**----- 935-939

SHORT COMMUNICATIONS

Genetic diversity analysis of yield, morphological, physiological and biochemical attributes in Pigeonpea (*Cajanus cajan* (L.) Millsp.)

—**S. Hima Bindu, L. Prasanthi, V. Lakshmi Narayana Reddy and P. Latha**----- 941-944

Study the spectrum of induced chlorophyll and morphological mutants in Mungbean (*Vigna radiata* L. Wilczek)

—**P.M. Rahevar, R.M. Chauhan, P.T. Patel, M.P. Patel, H.S. Bhaduarua, S.D. Solanki and Y.A. Viradiya**----- 945-948

Effect of nutrient management and tassel removal on productivity of maize (*Zea mays* L.)

—**Narendra Natwaria, Minu Mohan, K.K. Khuntiya and A.K. Sinha**----- 949-952

Study of efficient cropping zone (ecz) for major autumn (Rabi) crops in Haridwar district, Uttarakhand

—**Avadhesh Kumar Koshal, Harsha Sharma and Anamika Jain**----- 953-956

Constraints faced by the consumers in purchasing organic vegetables in Thrissur corporation of Kerala

—**Soorya C., K.S.R. Paul, K. Suseela and V. Srinivasa Rao**----- 957-959

A PRELIMINARY SURVEY OF ETHNOMEDICINAL FLORA ALONG PIR PANJAL GRADIENT (KASHMIR-HIMALAYAS), AHARBAL KULGAM (J&K UT), INDIA

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Abstract: The present study is a preliminary survey to assess the medicinal flora of Aharbal, Kulgam. The area is located at the foothills of Pir Panjal Mountain Range (North-western Himalayas, India). The survey was carried out from April to July 2021. A total number of 42 plant species having medicinal value were observed, collected and photographed. The identification was done using morphological characters, identification keys, relevant literature and expert suggestions. The collected 42 plant species belong to 29 different families and the highest number of plants were collected belong to the family Asteraceae. The collected specimens are kept in the herbarium of the Department of Botany, School of Life Sciences, Central University of Kashmir, Ganderbal, Jammu & Kashmir, India. The present study is the first documentation of the medicinal flora from the region (Aharbal, Kulgam) and will support in the conservation of the endangered medicinal flora.

Keywords: Aharbal, Ethnomedicine, Himalayas, Kashmir, Kulgam, Medicinal Flora, Survey

PERFORMANCE OF STRAWBERRY CULTIVARS FOR GROWTH, YIELD AND QUALITY UNDER NATURALLY VENTILATED POLYHOUSE CONDITIONS

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Abstract: Strawberry has considerable genetic diversity. Evaluation of cultivars has gained paramount importance and essential for recommendation of cultivars to particular location. Six strawberry cultivars were studied for growth, flowering, yield and quality grown at temperature below 28°C under naturally ventilated polyhouse. The pooled data revealed maximum plant height (22.58 cm), plant spread (31.50 cm East-West), (33.67 cm North-South), minimum number of days to fifty % flowering (103.99 days), number of days flowering to fruit set (12.35 days), number of days to maturity (27.88 days), maximum number of primary fruits (3.32), secondary (4.27), tertiary fruits (5.44), fruit yield per plot (2.00 kg) and yield per hectare (11.34 t ha⁻¹) were recorded in Winter Dawn. Among the evaluated cultivars, Sweet Charlie had recorded maximum total sugars (6.17%) while Winter Dawn had registered minimum albinism disorder (1.42%) and maximum benefit cost ratio (2.29) as per the pooled data.

Keywords: Strawberry, Cultivars, Diversity, Polyhouse, Performance

EFFECT OF NUTRIENT MANAGEMENT ON GROWTH, YIELD, UPTAKE OF NUTRIENTS AND RESIDUAL SOIL FERTILITY IN *KHARIF* SESAME (*SESAMUM INDICUM* L.) UNDER ORGANIC FARMING

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Abstract: A field experiment was carried out during *kharif* season of 2019 at Agronomy Instructional Farm, C. P. College of Agriculture, S. D. Agricultural University, Sardarkrushinagar, Gujarat to study the effect of nutrient management on growth, yield, uptake of nutrients and residual soil fertility in *kharif* sesame (*Sesamum indicum* L.) under organic farming. Growth attributes such as leaf area per plant, leaf area index, dry matter accumulation per plant; yield attributes viz; number of capsules per plant, seed weight per capsule and test weight as well as seed yield and stalk yield were recorded significantly higher with application of FYM @ 2.5 t/ha + Castor cake @ 250 kg/ha + *Panchagavya* spray @ 4% at 30, 50 and 70 DAS being at par with application of 2.5 t FYM/ha + 250 kg Castor cake/ha along with either 4% *Panchagavya* foliar spray either one spray at 30 DAS or two sprays at 30 and 50 DAS. It also significantly improved the oil yield besides, improving quality of seed (protein content) as well as total uptake of N and P₂O₅ by sesame crop. Maximum net returns and benefit cost ratio were obtained with application of 2.5 t FYM/ha + 250 kg Castor cake/ha along with 4% *Panchagavya* two sprays at 30 and 50 DAS under organic farming. Similarly, significantly higher organic carbon content in soil after harvest of sesame was found in this treatment as compared to initial and use of single source of organic manure.

Keywords: Farm yard manure, Castor cake, *Panchagavya*, Sesame, *Kharif*

EFFICACY OF BIO-RATIONAL INSECTICIDES AGAINST THE MANAGEMENT OF BRINJAL SHOOT AND FRUIT BORER

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Abstract: The field experiment was conducted at Research Cum Instructional Farm of Raj Mohini Devi College of Agriculture and Research Station, Ambikapur (C.G.) during Rabi 2018-19, for the efficacy of bio-rational insecticides against the management of brinjal shoot and fruit borer. Bio-rational insecticides such as Neem seed extract 5%, Karanj oil 1%, Eucalyptus oil 1%, Neem oil 1%, *Metarhiziumanisoplae* 2.8x10⁶ and *Beauveria bassiana* 2.04x10⁶, *Bacillus thuringiensis* 2x10⁸, etc. were evaluated for their efficacy against *Leucinodes orbonalis* in field conditions. The overall per cent shoot and fruit infestation and number of larvae per plant in insecticidal treatments were seen to be significantly low over control. However, Neem seed extract 5% was found superior from rest of the insecticides. The Neem seed extract 5% against the shoot and fruit borer, *Leucinodes orbonalis* was found to be most effective chemical because it recorded the minimum per cent shoot and fruit infestation (22.92%). The second best treatment was *Beauveria bassiana* 2.04x10⁶ (25.06%) followed by Neem oil 1% (23.81%), *Bacillus thuringiensis* 2x10⁸ (25.05%), *Metarhiziumanisoplae* 2.8x10⁶ (26.21%), Eucalyptus oil 1% (27.45%), Karanj oil 1% (29.53%). Whereas in control plot maximum per cent shoot and fruit infestation (54.42%) were observed.

Keywords: Brinjal, Bio-rational insecticides, Neem seed extract

DEVELOPMENT OF CROP COEFFICIENT OF CHILLI GROWN UNDER POLYHOUSE FOR THE SEMI-ARID REGION

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Abstract: A field trial was conducted in Chilli, crop variety TNAU Hybrid Co-1, at the department of Soil and Water Conservation Engineering, Agricultural Engineering College and Research Institute, Tamil Nadu Agricultural University, Kumulur during the year 2020-21. The Chilli seedlings were raised in protrays and transplanted inside and outside of naturally ventilated polyhouse. Drip irrigation system was laid out. Chilli plant growth parameters, yield parameters and water use efficiency were recorded. Early flowering and fruit formation were noticed inside polyhouse condition. The reference evapotranspiration was calculated by FAO ETo calculator. Soil moisture sensors were installed at the crop root zone depth and the data were recorded continuously. The actual crop water requirement was calculated through soil water balance model. The crop coefficient value of Chilli was developed for the semi arid region as 0.47, 0.78, 1.01, 0.72 for initial, developmental and middle stage and end stage respectively for polyhouse condition with naturally ventilated (17 % opening area) and Crop coefficient value of 0.53, 0.79, 1.03 and 0.76 for initial, developmental, middle and end stage respectively for outside cultivation of chilli crop.

Keywords: Chilli, Crop coefficient, Evapotranspiration, Water use efficiency

EFFECT OF DIFFERENT STORAGE TEMPERATURE ON PHYSICO-CHEMICAL AND SENSORY ATTRIBUTES OF BER FRUIT

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Abstract: Influence of various storage temperatures on physico-chemical of jujube fruit cv. 'Umran' was evaluated. Fruits were procured from a research orchard. Fruits were stored at ambient (as control), 10°C and 15°C and evaluated for 35 days. The physico-chemical parameters such as total soluble solids, pH, acidity, sugars and phenolic compounds and sensory attributes were analyzed during storage. The results showed that the low temperature successfully conserve the physico-chemical attributes of Indian jujube. In comparison with control, fruit stored at 10°C, showed a significant effect on physico-chemical and sensory attributes of jujube. However, pH and acidity was least affected by storage temperature in comparison to other parameters. In addition, storage temperatures also enhance the phenolic compounds of jujube due to low temperature, resulting lower conversion of natural compounds such as ascorbic acid, organic acids and titratable acidity to their derivatives.

Keywords: Acidity, Ascorbic acid, Sugar, Total soluble solids, Phenol

IN VITRO EVALUATION OF DIFFERENT FUNGICIDES AND ORGANIC AMENDMENTS AGAINST *RHIZOCTONIA BATATICOLO* CAUSING DRY ROOT ROT OF GROUNDNUT

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Abstract: Dry root rot of groundnut, a fungal disease more prevalent under rainfed conditions and is capable of causing considerable loss in the yield when left unmanaged. In order to find out an effective input for managing the disease, three organic amendments (neem cake, castor cake and karanj cake) at three different concentrations of their aqueous extracts (5 %, 10 % and 15 %) and six different fungicides with contact, systemic and combination mode of action *viz.*, tebuconazole, difenconazole, mancozeb, carboxin, carbendazim 12 % + mancozeb 63 %, tebuconazole 50 % + trifloxystrobin 25 % were screened for their efficacy against the pathogen at various concentrations *in vitro* by poisoned food technique. Among the organic amendments tested, karanj cake showed maximum inhibition of pathogen growth *i.e.*, 13.56 per cent and 32.55 per cent at 10 per cent and 15 per cent concentrations respectively and no inhibition at 5 per cent concentration whereas neem and castor cakes did not show any inhibition at all the concentrations tested. Among the fungicides mancozeb (2500, 3000 and 3500ppm), carbendazim 12% + mancozeb 63% WP (2500, 2000 and 1500ppm), tebuconazole 50%+ trifloxystrobin 25% 75 WG (1500, 1000 and 500ppm,) recorded complete inhibition of the pathogen at all the concentrations tested.

Keywords: Groundnut, Dry root rot, Organic amendments, Fungicides, *R. bataticola*

GENETIC DIVERSITY ANALYSIS OF YIELD, MORPHOLOGICAL, PHYSIOLOGICAL AND BIOCHEMICAL ATTRIBUTES IN PIGEONPEA (*CAJANUS CAJAN* (L.) MILLSP.)

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Abstract: A set of 50 pigeonpea genotypes were evaluated during *kharif* season 2019-20 at Regional Agricultural Research Station (RARS), Tirupati, Andhra Pradesh to assess the genetic diversity among genotypes for all yield, physiological, leaf morphological and biochemical attributing characters. D² analysis grouped 50 genotypes into 6 clusters. Cluster II was largest consisting of 29 genotypes, followed by Cluster I containing 13 genotypes, Clusters III and IV had 3 genotypes each and the Cluster V and VI was solitary. The inter-cluster D² values indicated that most diverse clusters were Clusters III and IV (4187.56) followed by Clusters II and IV (3686.56). The highest intra-cluster distance was observed in Cluster III (273.66) followed by cluster II (234.81). Leaf hairiness and number of pods per plant together contributed 81.63 % for

divergence. To include the genotypes in the hybridization programmes for the improvement of pigeonpea, the characters with maximum contribution towards divergence and the performance of genotypes should be considered.

Keywords: Cluster analysis, Genetic diversity, Pigeonpea

Journal of Plant Development Sciences Vol. 13(12)

STUDY THE SPECTRUM OF INDUCED CHLOROPHYLL AND MORPHOLOGICAL MUTANTS IN MUNGBEAN (*VIGNA RADIATA* L. WILCZEK)

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Abstract: To induce mutagenesis, mung bean variety GM - 4 was irradiated with different dose of physical (Gamma rays) mutagen to induce mutagenesis. The chlorophyll mutants were studied in M₂ and M₃ generations and spectrum of chlorophyll mutation were worked out. There were five types of chlorophyll mutation was observed, i.e. albina, xantha, chlorine, viridis and complex types. While analysing the result, it was observed that the mutation frequency increased with increase in the dose of mutagen. The different types of morphological mutants were also induced. Of the different types of macro-mutations induced in the present investigation, the chlorophyll deficient mutations are of hardly any economic importance but the tall, dwarf, male sterile and brown pod colour mutants are agronomically important.

Keywords: Chlorophyll mutants, Mungbean, Mutation

Journal of Plant Development Sciences Vol. 13(12)

EFFECT OF NUTRIENT MANAGEMENT AND TASSEL REMOVAL ON PRODUCTIVITY OF MAIZE (*ZEA MAYS* L)

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Abstract: A field experiment was conducted at Research farm, Ambikapur Chhattisgarh on maize in rabi season 2020- 21 to study the effect of nutrient management and tassel removal. The experiment was laid out in factorial randomized block design with two factors. Factor A having three levels of nutrient management and factor B having three levels of detasseling of maize which consisted of nine treatment combination each replicated thrice. First factor was of nutrient management viz., 100% RDF, 100 % RD of N & P₂O₅ and 75% K₂O and 75 % RDF whereas another factor was Detasseling viz., no tassel removal, 50% tassel removal of alternate crop within row, and 50% tassel removal of crop of alternate row. Various yield attributes such that no. of cobs, cob length, cob girth, no of grain rows cob⁻¹, number of grains row⁻¹, barrenness %, cob yield, grain yield, net return and B:C ratio was recorded highest under the treatment with F₁ i.e., 100% RDF which was found to be at par with F₂ i.e., 100% RD of N & P and 75% of K but both of these treatments were significantly superior over F₃ i.e., 75% RDF. Detasseling practice indicated that the yield parameters and cob yield, grain yield, net return and B:C ratio were observed higher under D₁ i.e., 50% tassel removal of alternate crop within row which was at par with D₂ i.e., 50%

tassel removal of alternate row and both of these treatments were found significantly superior over D₀ i.e., no tassel removal. The interaction between F₁ D₁ i.e. 100% RDF and 50% tassel removal of alternate crop within row had maximum grain yield and proved to be better in economic return over the other treatments.

Keywords: Detasseling, Nutrient management, Rabi season, Yield attributes, Yield

Journal of Plant Development Sciences Vol. 13(12)

STUDY OF EFFICIENT CROPPING ZONE (ECZ) FOR MAJOR AUTUMN (RABI) CROPS IN HARIDWAR DISTRICT, UTTARAKHAND

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Abstract: There has been a significant indice in the RSI & RYI patterns of the crops distribution in the study region. The indices of crops area and yield calculated from district statistical data 2000-01 to 2018-19, the crop indices of the district have been calculated for major autumn season crops like wheat pea, lentils, potato, rapeseed & mustard, barley and wheat (Koshal & Kumar, 2015). The study was conducted to identify the efficient cropping zone of major crops for Uttarakhand. The data on cultivable area and productivity of twelve major crops for 2000-01 to 2019-20 were collected and indices such as Relative Spread Index (RSI) and Relative Yield Index (RYI) were computed and the potential cropping districts for the crops were identified. The results indicated that among the different districts in Uttarakhand, Dehradun, Nainital US Nagar were efficient cropping zone (ECZ). The three districts of Uttarakhand viz. Almora, Pauri Garhwal & Tehri Garhwal belong to HECZ for autumn crops. In some of the districts though RSI is low, RYI is high which indicates the suitability of that major crops. Market demand and value of the produce, suitability of the crop made farmers to cultivate in their location which relates in low RSI with high RYI.

Keywords: Efficient Cropping Zone, Kharif crop, Autumn (Rabi) crop, Relative Spread index, Relative Yield index

Journal of Plant Development Sciences Vol. 13(12)

CONSTRAINTS FACED BY THE CONSUMERS IN PURCHASING ORGANIC VEGETABLES IN THRISSUR CORPORATION OF KERALA

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Abstract: This study is aimed to assess the constraints faced by consumers in purchasing organic vegetables. The present study was conducted in Thrissur Corporation of Kerala and primary data was collected through personal interview from 200 consumers. Collected data was analysed using Garret ranking technique. Unavailability of organic vegetables and poor range of varieties in the available organic vegetables, lack of advertisements and distance to the shops were identified as the major constraints faced by the consumers in purchasing organic vegetables. The findings will help policy makers to develop suitable strategies effectively by targeting the consumers' choices and understanding the barriers.

Keywords: Constraints, Garret ranking, Organic vegetables