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PHYTOPHAGOUS INSECTS ASSOCIATED WITH SOME MEDICINAL PLANTS CULTIVATED IN KARNATAKA

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Abstract: Studies were conducted to determine the diversity of phytophagous insects associated with seven medicinal plants: *Acorus calamus* L., *Adhatoda vasica* (L.), *Gymnema sylvestre* (Retz.), *Morinda citrifolia* L., *Mucuna pruriens* (L.), *Piper longum* L., and *Withania somnifera* cultivated in Karnataka. The study revealed 60 species of phytophagous insects on these medicinal plants, which includes 17 species of defoliators, 41 sap suckers, and two leaf miners. The sap suckers were observed to be the most important insects, causing economic loss to medicinal plants. 37 species of insect pests, including five on *A. calamus*, seven on *A. vasica*, ten on *G. sylvestre*, and 13 on *M. citrifolia*, were among the 60 phytophagous insects recorded for the first time. Also on *P. longum* and *W. somnifera* observed a species each as a new record.

Keywords: Medicinal plants, Survey, Defoliators, Sap suckers

IMPACT ASSESSMENT OF FARM MECHANIZATION AND AGRONOMIC CONSEQUENCES IN HDPS COTTON TO ENHANCE PRODUCTIVITY IN RANGAREDDY DISTRICT, TELANGANA

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Abstract: Cotton (*Gossypium hirsutum* L.) is a major commercial crop in the rainfed regions of India and accounts for 23% of the total global production, playing a major role in sustaining the livelihood of 6 million cotton farmers, also known as “white gold”. In cotton cultivation lack of awareness among growers about the HDPS method and low adoption of agricultural mechanization Technologies has prevented farmers of Telangana from maximizing production benefits. The study aimed to evaluate the mechanization in the newly developed production technology High Density Planting System (HDPS) of cotton with crop spacing of 90 x 15 cm. The introduction of appropriate machinery operations in HDPS cotton greatly reduced the time up to 82% and labour requirement. The HDPS in combination with the mechanized method increased production per unit area by decreasing plant spacing from 45 x 15 cm and increasing plant density from 9,800 to 29,500 plants per acre. The practices gave maximum yield in HDPS cotton cultivation in the 27-32 q/ha range. The B:C ratio for mechanized HDPS cotton cultivation was 2.64 as compared to 1.44 for conventional cultivation.

Keywords: Cotton crop, Mechanization, Pneumatic planter, Drone, S talk shredder

PHYSIOLOGY AND INDUCTION OF DEFENSE ENZYMES IN MERISTEM DERIVED CASSAVA (*MANIHOT ESCULENTA*. CRANTZ) PLANTS

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Abstract: Physiology and induction of defense enzymes in meristem derived and *Cassava mosaic virus* infected cassava plants (cv. MVD1 and cv. H226) were studied. Chlorophyll a, chlorophyll b, total chlorophyll, total phenol, total sugars and total soluble protein contents were more in meristem derived healthy cassava plants as compared to *Cassava mosaic virus* infected cassava plants. SDS-PAGE analysis revealed the presence of 35 KDa protein in *Cassava mosaic virus* infected samples of cv. MVD1 and cv. H226 collected from field which was absent in meristem derived healthy plants. Induction of enzymes viz., PO, PPO, PAL and catalase was more in *Cassava mosaic virus* infected cassava plants.

Keywords: *Cassava mosaic virus*, Chlorophyll, Phenol, Protein, Meristem

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COMPARATIVE STUDIES ON STORAGE OF BOTTLE GOURD

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Abstract: Bottle gourd without any treatment and wrapper (1000g) were placed over perforated plastic round basket and stored under Room storage and zero energy cool chamber (ZECC) up to 8 days with thrice replication. The moisture (db, %), mass (g), physiological loss in weight (PLW, %), shrinkage (%) and volume (cc) of bottle gourd was evaluated. It is clear from that the shelf life of bottle gourd were increased by keeping them in room storage and ZECC. Low PLW and shrinkage was noticed under ZECC throughout the period of storage. As per present study, due to lowest decrement in PLW and shrinkage was observed in Zero energy cool chamber was found best suitable for bottle gourd in place of room storage. Temperature was observed viz. 23.4 to 26.9°C and RH 77 to 84 % in ZECC as compared to room storage with temperature ranged 33.0 - 37.8°C and RH (14 - 39 %).

Keywords: Room storage, Bottle gourd, Cool chamber, Physiological loss

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RESPONSE OF FOLIAR APPLICATION OF PLANT GROWTH REGULATORS ON GROWTH, YIELD ATTRIBUTES AND YIELDS OF CORIANDER (*CORIANDRUM SATIVUM* L.) IN CHHATTISGARH PLAIN

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Abstract: Present investigation entitled “Response of foliar application of plant growth regulators on growth, yield attributes and yield of coriander (*Coriandrum sativum* L.) in Chhattisgarh plain” was conducted during *rabi* season 2023-24 at Horticulture Research Cum Instructional Farm, Barrister Thakur Chhedilal College of Agriculture and Research Station, Bilaspur (C.G.). The experiment were laid out in a RBD replicated thrice with three different plant growth regulators with different levels including GA₃ @ 50, 75 and 100 ppm, NAA @ 50, 75 and 100 ppm and Cycocel @ 100, 150 and 200 ppm as foliar application at pre flowering stage (30 DAS) and pre seed setting stage (50 DAS) and control plot. The results

showed that the application of GA₃ @ 50 ppm (T₂) gave maximum plant height (cm), maximum number of branches plant⁻¹. Among the yield and yield attributing characters such as plant height (cm), number of umbels plant⁻¹, number of umbellate umbel⁻¹, number of seeds umbel⁻¹, test weight of seed and seed yield (q ha⁻¹) were maximum with GA₃ @ 50 ppm (T₂). Economics study of coriander seed production showed that maximum gross return (118575.23 ` ha<sup>-1</sup>), net return (92200.23 ` ha⁻¹) and benefit: cost ratio (3.50) were found with GA₃ @ 50 ppm (T₂), followed by GA₃ @ 50 ppm (T₃).

Keywords: Coriander, Growth, Yield, Economics, GA₃, NAA

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SEASONAL INCIDENCE OF BLOSSOM MIDGE, *CONTARINIA MACULIPENNIS* FELT ON JASMINE, *JASMINUM SAMBAC* L.

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Abstract: A study was carried out at Agricultural College and Research Institute campus and farmer's field located at Vallanad village of Tuticorin district, Tamil Nadu, India, to analyze the seasonal incidence of blossom midge, *Contarinia maculipennis* Felt on jasmine, *Jasminum sambac* L. In the present study, the blossom midge had negative association with rainfall (-0.528*) and evening relative humidity (-0.706**). The rainfall and morning relative humidity influence the variability in damage due to blossom midge by 53 per cent ($R^2 = 0.528$). A unit increase in rainfall decrease the damage by 0.94 per cent and a unit increase in morning relative humidity decreased the blossom midge damage by 0.44 per cent, respectively. Such information is essential in developing IPM module with ecological and economical balance.

Keywords: Seasonal incidence, Blossom midge, Weather factors, Jasmine