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## MORPHOLOGICAL AND GENETICAL DIVERSITY ANALYSIS OF *ALTERNARIA* ISOLATES FROM DIFFERENT HOST PLANT

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**Abstract:** *Alternaria* is a plant pathogenic fungus with a wide host range and causes disease in different types of plant. In the present study, eleven *Alternaria* isolates were collected from infected samples of different host plant belonging to diverse families. Identification and study of diversity study was done based on the morphological features of the isolates i.e., colony characteristics size, septation and beak length of conidia. Genetical variability among the isolates was carried out by using three RAPD primers. All isolates were identified as belonging to the genus *Alternaria*. The diversity analysis showed that seven of the isolates were different from each. However, TD7 and TD2 resembled in their morphological as well as genetical characters, similarly TD17 and TD12 were also found similar. No significant relationship could be established between host plant infected and pathogen morphological or genetics. It was however apparent that *Alternaria* sp. may be morphologically similar but genetically dissimilar. The genus *Alternaria* was highly variable in their morphological and genetical characters. All the eleven isolates, including the two pairs of similar isolates, showed significant genetical variability.

**Keywords:** *Alternaria* sp., Conidia, Plant pathogen, RAPD

## EVALUATION OF PHYSIOCHEMICAL AND ANTIBACTERIAL PROPERTIES OF HONEY SAMPLES FROM BANI (J&K): POLLEN MORPHOLOGY OF SELECTED BEE FORAGE PLANTS

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*Received-07.12.2017, Revised-26.12.2017*

**Abstract:** Present study was aimed to investigate the physio-chemical and antibacterial properties of honey samples and pollen morphology of selected bee forages obtained from Bani region of Jammu and Kashmir. Honey samples collected were not identical because of having different physio-chemical properties such as glucose content, moisture content, colour, refractive index and pH. Antibacterial activity of honey determined using different strains of bacteria viz. *Staphylococcus aureus*, *Streptococcus pyogenes*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* in comparison to antibiotic (Ofloxacin) showed no significant results. During the present investigation, pollen reference slides of flowering plants (Bee forages) explored by honeybees of different ecological origin were prepared and studied for pollen taxonomy and a total of fifteen flowering plants of 11 families visited by honey bees were collected and studied for pollen morphology and production along with their carbohydrate content. Pollen grains of these plants were variable in shape, class, aperture, exine thickness and ornamentation. Besides, they also differ in their pollen production rate as well as their carbohydrate content.

**Keywords:** Honey, Physio-chemical properties, Antibacterial activity, Bani, Bee forages

## LEAF PHYSIOGNOMIC ANALYSES OF AVAILABLE SPECIES OF *AVICENNIA* L. IN INDIAN SUNDARBANS FOR USING AS TAXONOMIC TOOL

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**Abstract:** Leaf physiognomic analyses with both macro and micro morphological traits of three species of *Avicennia* namely, *A. alba* Blume, *A. marina* (Forsk.) Vierh, and *A. officinalis* L. have been done to identify the variability among them. A wide range of variations in leaf shape, length, apex, base, texture, venation pattern, epidermal cell type, stomatal cell type, stomatal frequency and stomatal index are observed in the studied species which might be used as taxonomic tool. Moreover, the detailed micro morphological features as revealed through present study are new observations which will enrich the existing database on leaf morphology of *Avicennia*.

**Keywords:** *A. alba*, *A. marina*, *A. officinalis*, Micro morphology, Identification

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## **PHENOLOGICAL STUDIES IN A DIOECIOUS HEPATIC, *PELLIA ENDIVAEFOLIA* (DICKS.) DUMORT**

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*Received-10.12.2017, Revised-26.12.2017*

**Abstract:** Events of the sexual reproductive cycle of 40 populations of *Pellia endivaeifolia* were noticed for 3 years.. The phenological events were different among different populations at different sites. There was a seasonal effect on the maturation of gametangia and sporophytes. Some populations exhibited sporophyte formations twice a year whereas others had sporophyte formation only once. Such variations could be on account of various environmental factors.

**Keywords:** Bryophyte, Egg, Phenological studies, Sexual reproduction

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## **LIVELIHOOD SECURITY OF FARMERS IN EASTERN UTTAR PRADESH: AN ECONOMIC ANALYSIS**

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*Received-02.12.2017, Revised-19.12.2017*

**Abstract:** The present study was conducted to investigate and find out the livelihood security status of the farmers in eastern Uttar Pradesh. Varanasi and Sonbhadra districts were purposively selected because these districts are having differences with respect to irrigated and rainfed farming systems respectively. Pindrablock of Varanasi district and Ghorawalblock of Sonbhadra district were selected based on highest net sown area of food crops and to represent various farming systems. Primary and secondary data were used in the study. To address the objectives set forth for the study, primary data were collected from 200 randomly selected farmers for the period 2016-17. Six different livelihood security indicators were constructed based on the prevailing condition of farmers' households in the study area. The index score of indicator ranged from 0 to 1. Higher value of the indicator implies households are better off and more secured in terms of their livelihood. Economic security and habitat security status are in highly vulnerable situation for rain-fed farmers compare to irrigated farmers. This confirmed that around 53 % of the irrigated farmers and around 62 % of the rain-fed farmers were in livelihood insecurity status in the study area.

**Keywords:** Farming System, Livelihood security, Livelihood security index, Social Security

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## **STUDIES ON YIELD AND QUALITY OF FRENCH BEAN (*PHASEOLUS VULGARIS* L.) GENOTYPES, UNDER NET- HOUSE CONDITIONS**

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**Abstract:** French bean is an important legume crop which is grown for its dry grain and tender pods in North-Western India. This off-season crop can be successfully raised in Punjab during winter season which fetches higher price in the market and economical to the farmers when there is no availability of green pods from high altitude. Hence, there is a great scope of cultivation of French bean under net-house conditions in Punjab. The present investigations were carried out in Department of Vegetable Science, PAU Ludhiana with the sole objective to indentify French bean genotypes suitable for cultivation under net-house conditions. Twenty genotypes were selected for green pod yield per plant, number of pods per plant, average pod weight (g). Based on the two year studies, the genotypes Falguni (350.19 g), Cosmo (329.86 g) and IIHR-909 (240.22 g) performed better under net-house conditions for total green pod yield per plant. Maximum number of pods per plant was recorded in genotype Falguni (52.33), Seville (50.83) and IIHR-909 (49.50) while maximum pod weight was elicited by genotypes Falguni (6.96g), Cosmo (6.11g) and DWP-FB-57 (5.78g) respectively.

**Keywords:** French bean, Green pod yield, Pod weight, Net-house

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## **FEEDING POTENTIAL OF *CHRYSOPERLA ZASTROWI SILLEMI* ON SOLENOPSIS MEALY BUG, *PHENACOCCLUS SOLENOPSIS TINSLEY* INFESTING COTTON**

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*Received-06.12.2017, Revised-25.12.2017*

**Abstract:** The feeding potential of *Chrysoperla zastrowi sillemi* (Esben-Peterson) on eggs (ovisac), nymphs and female adults of mealy bug (*Phenacoccus solenopsis*) were studied at Bio-control Laboratory, Department of Agricultural Entomology, N. M. College of Agriculture, Navsari Agricultural University, Navsari during September to October 2014. In no choice feeding against cotton mealy bugs, the feeding potential of larvae of *C. zastrowi sillemi* was found more on eggs (ovisac) and nymphs than female adults (freshly formed). On eggs of mealy bug, the feeding potential of larvae of *C. zastrowi sillemi* was 1778 to 2035 (Av. 1886.60 ± 74.88) eggs with consumption rate of 177.80 to 203.50 (188.6 ± 7.49) eggs per day whereas on nymphs of mealy bug, it was 812 to 899 (Av. 845.50 ± 23.44) nymphs with consumption rate of 81.20 to 89.90 (Av. 84.76 ± 2.21) nymphs. When fed exclusively on female adults, it was 119 to 141 (Av. 132.15 ± 6.37) female adults with consumption rate of 13.20 to 16.90 (14.87 ± 0.89) adults per day. The larvae of *C. zastrowi sillemi* developed little bit faster when fed on female adults of mealy bug than fed on eggs and nymphs. In free choice feeding of mixed stages of mealy bug, the feeding potential was found to be 886 to 998 (Av. 938.65 ± 35.09) mealy bug exhibited preference to eggs and nymphs of mealy bug more as indicated by proportion of 408 to 477 (440.90 ± 18.93) eggs, 364 to 422 (395.70 ± 15.82) nymphs and 94 to 113 (102.05 ± 4.72) female adults in mixed stages offered. The consumption rate was 88.6 to 107.2 (94.93 ± 5.27) mixed stages of mealy bug per day in its developmental durations of 9 to 10 (Av. 9.75 ± 0.44) days.

**Keywords:** *Chrysoperla zastrowi sillemi*, Feeding potential, *Phenacoccus solenopsis*

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## **IMPACT OF KRISHI VIGYAN KENDRA'S TRAINING ON ADOPTION OF IMPROVED RICE PRODUCTION TECHNOLOGY IN REWA DISTRICT. (M.P.)**

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**Abstract:** In rural India by raising the level of farm productivity, income and employment with application of agricultural innovations, an innovative extension education institution Krishi Vigyan Kendra (KVK) was introduced by ICAR. In context with Rewa district of M.P. rice is the most prominent crop of the district as occupying 115.7 thousand ha. area with the productivity of 1416 kg/ha (Source – District Land Record Rewa). Krishi Vigyan Kendra Rewa has been conducting a number of training programmes on location specific technological aspects of rice crop. The main purpose of the training programme is to accelerate the adoption and diffusion rate of improved rice production technologies. The study was carried out to assess the adoption of improved rice production technology of paddy growers. It was found that the majority of the respondent (45.84%) had medium adoption. of improved rice production technologies. Mean adoption score was highest in improved variety (1.65) followed by seed rate (1.61), seed treatment (1.60), management of organic manure (0.69) and lowest mean score was application of manure (0.62). The study also revealed that the major constraints faced by farmers required technological inputs were not available at local level (71.66%) followed by lack of trials and demonstration related to low cost technology (66.66), no planning of the outside exposure visit (63.33), low market price of agricultural product (58.33) and lack of infrastructural facilities for using the technological skill on occupational basis at the village level (57.50),

**Keywords:** Agricultural innovation, Krishi Vigyan Kendra, Rice

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## **EFFECT OF BALANCED NUTRITION AND BIO-INOCULANTS ON FLOWER YIELD AND QUALITY ATTRIBUTES OF CHRYSANTHEMUM (*DENDRANTHEMA GRANDIFLORA TZVELEV*)**

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**Abstract:** A field experiment was conducted to know the response of Chrysanthemum (*Dendranthema grandiflora Tzvelev*) to balanced nutrition with bio-inoculants at the, College of Horticulture, Mudigere during 2015-16. Plants treated with (T<sub>22</sub>) *Bacillus megaterium* + *Bacillus mucilaginosus* + MgSO<sub>4</sub> + Micronutrient mixture recorded significantly maximum flowers per plant (100), flower yield per plant (627.20 g), flower yield per plot (61.46 kg), flower yield (30.73 t/ha) and individual flower weight (6.27 g), flower diameter (7.25 cm), number of petals per flower (136.50), shelf life (15.25 days), vase life (22 days) followed by *Azotobacter* + *Bacillus mucilaginosus* + MgSO<sub>4</sub> + Micronutrient mixture and *Azotobacter* + *Bacillus megaterium* + MgSO<sub>4</sub> + Micronutrient mixture over the control (RDF) respectively.

**Keywords:** Chrysanthemum, Bio-inoculants, MgSO<sub>4</sub>, Micronutrient mixture, RDF

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## **EFFECT OF ACCELERATED AND NATURAL AGEING ON TOTAL SOLUBLE SEED PROTEIN PROFILE OF WHEAT (*TRITICUM AESTIVUM*)**

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**Abstract:** Study was conducted to compare fresh, natural and accelerated seed lots of wheat with germination and vigour index varied from 98.67 to 44.00 and 2960 to 524.92 respectively. Germination loss became more evident in accelerated ageing as compared to fresh and natural aged lot. Total soluble seed protein banding pattern of different aged seed was revealed that there was decline in band intensity, band numbers or disappearance of some bands with ageing. It is more in accelerated aged lot as compared to natural aged seed lot. Thus, seed lot with slight variation in germination or vigor could

also be used for varietal characterization by SDS-PAGE to differentiate the cultivars or even for genetic purity testing, but not the seed lots which were severely aged that lost threshold limit of 50 per cent.

**Keywords:** Accelerated ageing, Protein profiles, SDS-PAGE, Wheat seed

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## **ANALYSIS OF MICROBIAL CONTAMINATION OF DRINKING WATER AT MEERUT DISTRICT, NORTHERN INDIA**

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**Abstract:** Water is one of the most important natural resource on earth. The safety of drinking water is important for the human health. The safety of drinking water is affected by various contaminants specially bacteria. Coliform can cause serious health problems. The analyses of drinking water quality at Meerut District, Uttar Pradesh, India, were done. The experimental procedures were set according to the international drinking water standards set by World Health Organization. Bacteriological examination of water samples collected from different sources showed that the water of bore wells were not potable and found across the maximum permissible limit of contamination for drinking water guidelines, while in 2016, only two water samples were found to be safe for drinking purpose.

**Keyword:** Drinking water, Coliforms, Health problems, World Health Organization, Contamination

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## **MANAGEMENT OF PREVALENCE OF NATURAL ENEMY, *EUBLEMA AMABILIS* (MOORE) BY NOVEL INSECTICIDES AT KORBA DISTRICT OF CHHATTISGARH**

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**Abstract:** Management of prevalence of natural enemy, *Eublema amabilis* (Moore) was studied during year 2014-15 and 2015-16 at Korba District of Chhattisgarh. Overall impact of insecticidal application, emamectin benzoate @ 0.002 per cent was found very much effective in suppression the population of lac predator, *E. amabilis* (Moore) over control with minimum 1.11 and 0.88 insect/30 cm of lac stick at first spray 30 day after BLI and second spray 60 day after BLI, respectively and relatively suffer or less toxic for lac cultivation followed by indoxacarb @ 0.02 per cent, spinosad @ 0.02 per cent, indoxacarb @ 0.005 per cent, fipronil @ 0.005 per cent, fipronil @ 0.02 per cent, spinosad @ 0.005 per cent, spinosad @ 0.0025 per cent, fipronil @ 0.0025 per cent growers practice ethofenprox @ 0.02 per cent and indoxacarb @ 0.003 per cent accept fipronil 0.02 per cent.

**Keywords:** Natural enemy, *Eublema amabilis* (Moore), Novel insecticides

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## **EMPOWERMENT OF RURAL WOMEN THROUGH NATIONAL RURAL LIVELIHOOD MISSION IN REWA BLOCK OF REWA DISTRICT (M.P.)**

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*Received-02.12.2017, Revised-22.12.2017*

**Abstract:** Rural women empowerment is a multi-dimensional process, which enables rural women or group of women to realize their full identity and power in all spheres of life. The present study was carried out in Rewa district M.P. National Rural Livelihood Mission project has been running in the district since 2015 for improving the livelihood of rural women beneficiaries and their empowerment. The study was planned to assess the empowerment of the women among beneficiaries of NRLM. It was found that the aspect social empowerment (1.40) had highest mean empowerment score followed by psychological empowerment (1.19), economic empowerment (1.12), cultural empowerment (1.08). Mean empowerment score was lowest in case of political empowerment (0.64). The study also revealed that the characteristics namely, education, size of family, annual income, longevity of SHG's, cosmopolitaness, source of information, mass media participation, training participation, risk orientation, economic motivation, decision making and achievement motivation had significant relationship with empowerment at 5% level of significance of their empowerment of the rural women beneficiaries of NRLM.

**Keywords:** Empowerment, Livelihood, Rural women, Rewa block

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## **USE OF INK FOR STAINING AM STRUCTURES IN HEPATICS**

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*Received-02.12.2017, Revised-19.12.2017*

**Abstract:** Commonly available inks were used to stain AM fungal structures in rhizoids of three liverwort species so as to find a suitable replacement for carcinogenic stains like trypan blue. None of the inks were found to be suitable.

**Keywords:** Ink, Stain, Chemicals, AM fungi

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## **EFFECT OF SEED RATES AND SEED WATER SOAKING ON WHEAT UNDER DELAYED CONDITION**

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**Abstract:** The effect of seed rate and seed water soaking level on the performance of wheat was studied. The main plot treatment was seed rate (100,125&150 kg ha<sup>-1</sup>), sub plot treatment was (Without seed soaking and overnight soaking in water) and sub-sub plot treatment was covering the rows with FYM @2t ha<sup>-1</sup>and covering the rows without FYM. Six irrigation should be provided at different critical stages. The only higher seed rate 150 kg/ ha gave significantly higher yield (27.11 q/ha and 25.82 q/ha first and second respectively). The average yield was 26.0 q/ha. Higher yield were also obtained under seeds soaking and covering the furrows with FYM but the differences were not significant.

**Keywords:** Wheat, Seed rate, Water, Treatment, Production