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PHYTOSOCIOLOGICAL STUDIES ON BIODIVERSITY OF BONAIGARH FOREST DIVISION, SUNDERGARH DISTRICT, ODISHA

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Abstract: The present study deals with the phytosociological study on flora and fauna diversity of Bonaigarh forest division, Sundergarh district, Odisha, India during 2014-2015. A total of 323 species were recorded which represented by 133 families and 270 genera. Out of 323 species, 120 trees (42 family and 99 genera), 61 shrubs and herbs (32 family and 51 genera), 19 climbers (13 family and 17 genera), 25 grasses (18 genera and poaceae family), 35 mammals (18 family and 30 genera), 13 reptiles (7 family and 12 genera) and 50 birds (20 family and 43 genera).

Keywords: Phytosociological, diversity, Bonaigarh Forest Division, Sundergarh district, Odisha, flora and fauna

ADAPTIVE VARIABILITY IN LEAF TRAITS OF MANGROVE FERN ACROSTICHUM AUREUM L. IN RELATION TO ECOLOGICAL VARIATIONS

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Abstract: The macro and micro morphological traits of lamina (length and maximal width, the ratio of length & width (L:W), area, and stomatal index) are studied in the mangrove fern *Acrostichum aureum* L. (golden leather fern) grown naturally in mangrove and non-mangrove regions in West Bengal, India. Jharkhali, and Bhagbatpur are two selected sites in mangrove region of Indian Sundarbans from where the mature leaves are collected for study. Besides, the collection sites also include three non-mangrove regions namely, E.M. Bypass, and Garia of South 24 Parganas district and Majherchar, Kalyani of Nadia district of West Bengal. Individual parameter has been assessed and statistically analyzed. One-way analysis of variance (ANOVA) test significant variations in most of the leaf traits between and among the sites, but the percentage of variations in stomatal indices are less which signifies more stability. Results suggest that ecological conditions measured through soil attributes have some important role in controlling leaf traits adaptability.

Keywords: Indian Sundarbans, E.M. Bypass, Garia, Majherchar, Kalyani, macro and micro morphology, ANOVA

EFFECT OF SEQUENTIAL APPLICATION OF PRE AND POST EMERGENCE HERBICIDES IN RICE UNDER SODIC SOIL IN TIRUCHIRAPPALLI REGION OF TAMIL NADU

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Abstract: Field experiments were conducted at Anbil Dharmalingam Agricultural College and Research Institute, Tiruchirappalli during *rabi* 2011-12 and 2012-13. The soil was sandy clay loam with pH of 8.82 and 8.96 during *rabi* 2011-12 and 2012-13, respectively. Medium duration rice cultivar TRY 1 was used during both the years. The experiments were laid out in a strip plot design with three replications. The results revealed that direct planting system (DPS) recorded higher weed control efficiency and productivity of rice and among weed management practices, hand weeding twice at 20 and 40 DAT/S registered higher weed control efficiency and productivity of rice and it was comparable with PE pyrazosulfuron ethyl 30 g a.i. ha⁻¹ at 3 DAT / 8 DAS + POE bispyribac sodium 20 g a.i. ha⁻¹ at 15- 20 DAT / 20 DAS during both the years of study.

Keywords: Rice, Weed control efficiency, Yield

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MICROBIAL AND PHYSICO- CHEMICAL ASSESSMENT OF THE SACRED RIVER ALAKNANDA AT LOWER STRETCHES, UTTARAKHAND, INDIA

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Abstract : The Alaknanda River is one of the main rivers of Alaknanda sub- system which bubbles out from Alkapuri Glacier. Water quality of the sacred river Alaknanda was evaluated by microbiological and physico- chemical methods. The sampling was undertaken from various sites of lower stretches, including Rudraprayag (530 m a.s.l.), Srinagar (560 m a.s.l.) and Deoprayag upstream (457 m a.s.l.) on the river Alaknanda. A perusal of the data revealed that total viable count (CFU.ml⁻¹) was recorded minimum (25,850 CFU.ml⁻¹) in winter season and then it increased during summer (45,730 CFU.ml⁻¹) and attained peak (56,110 CFU.ml⁻¹) during monsoon season, when the maximum degradation in the water quality was observed. Due to the onset of autumn and winter seasons, the quality of water improved substantially and the density of the bacteria decreased (32,120 CFU.ml⁻¹) significantly during autumn from the monsoon season. It is revealed that the myriad of physico- chemical environmental variables and nutrient load from various sources in the habitat environment are responsible for density and diversity in the sacred river Alaknanda.

Keywords: Microbiological assessment, physico-chemical assessment, Alaknanda River, Water quality

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EFFICACY OF BIO-AGENTS AND CARBOFURAN AGAINST ROOT KNOT NEMATODE, *MELOIDOGYNE GRAMINICOLA* INFESTING RICE

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Abstract: Rice root-knot nematode (*Meloidogyne graminicola*) is an emerging problem to rice cultivation in various rice growing areas. Rice root knot nematode has reported to cause upto 50% loss in grain yield and in severe cases it may go upto 64 per cent. An experiment was conducted to study the efficacy of bio-agents against *Meloidogyne graminicola* on rice variety PB-1121. It was observed that, all *Trichoderma* isolates at 20 and 30 gm/kg soil significantly increased the shoot length of rice plants. *Trichoderma* isolates were reduced the infestation of root knot nematode in rice. At 40 days after seed sowing, minimum 1.61 galls/ plant were recorded in *Trichoderma* isolate-V @ 30 gm/kg soil. In case of *Trichoderma* isolate-III @ 30 gm/kg soil, average 3.00 galls/ plant were recorded as compare to carbofuran @ 3gm/kg (4.61) and control (25.17). *In vitro*, at 72 hours after inoculation, maximum 96.68% larval mortality was recorded in *Pseudomonas fluorescens* suspension. In *Trichoderma* isolate-IV, 74.18% larval mortality was recorded as compare to carbofuran (95.00%).

Keywords: Rice crop, Rice root knot nematode, *Meloidogyne graminicola*, Management

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A STUDY OF EFFECT ON DIFFERENT MEDIA PATHOLOGICAL STUDIES ON ANTHRACNOSE OF CHILLI (*CAPSICUM ANNUM* L.)

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Abstract: Anthracnose caused by *Colletotrichum capsici* is a common and sever disease of Chilli (*Capsicum annum* L.) keeping in view seriousness and importance of the disease, a chemical control trial was conducted at Student Research Farm, Pilikothi, Jaunpur. A highly susceptible variety (local variety) was sown in 3 x 2m plots in Randomized Blok Design with three replications. Six fungicides, viz., Bavistin (0.10%), Vitavax (0.10%), Topsin-M (0.15%), Blitox-50(0.20%), IndofilM-45(0.20%) and Sulphur (0.20%) were sprayed. All the treatment was significantly superior over control. Bavistin was best for the control of the disease followed by Vitavax and Topsin-M which were significantly at per with other. The remaining fungicides were also significantly superior in decreasing disease incidence and increasing the yield in comparison to control.

Keywords: *Capsicum annum*, Chilli, Pathological studies

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ESTIMATION AND IMPACT OF FLUORIDE CONTENT CAUSING SOIL POLLUTION IN SURROUNDINGS OF NOIDA

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Abstract: In this communication the author has carried out the estimation and impact of fluoride Content which is causing Soil pollution. Eight locations including Dadri, Kasana, Dankaur, Chiti and others have been taken for the study. The pH and organic content of the Soil in the region, ranges from 4.9-5.9 and 2.4 to 9.2% respectively. The concentration of fluoride ion ranges from 78.7 +2.5 to 202.2 + 1.2 in (mg/Kg dry wt). It is observed that as soils become more acidic, fluoride ion can be released in to solution and form complexes with aluminium. As soils become more alkaline negative charge increases on Soil surfaces, desorbs fluoride ions and could increase the fluoride ion concentration in solution. The impact on health may be serious, causing there by decolouration of teeth, severe pain and stiffness in bones.

Keywords: Fluoride, Soil, Noida, Pollution

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EFFECT OF FERTIGATION SCHEDULING AND COST ECONOMICS IN THREE CULTIVARS OF GUAVA (*PSIDIUM GUAJAVA* L.) UNDER ULTRA HIGH DENSITY PLANTING IN CHHATTISGARH

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Abstract: Field experiment was carried out during the year 2014-15 in winter season at research field of Precision Farming Development Centre (PFDC) of Department of Horticulture, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) to study the effect of drip irrigation and fertigation scheduling on performance of three cultivar of guava (*Psidium guajava* L.) in ultra high density planting. The experiment was conducted with three varieties (Lalit, Allahabad Safeda and L-49) along with three levels of fertigation scheduling (60% RDF, 80% RDF and 100% RDF). The benefit-cost (B: C) ratio was evaluated. Benefit-cost analysis was carried out to determine the economic feasibility of using drip irrigation. The cost of drip irrigation system includes depreciation, prevailing bank interest rate, repair and maintenance of the system. The interest rate and repair and maintenance cost of the system were 12 and 1% per annum of the fixed cost respectively. The useful life of drip system was considered to be 10 years. The cost of cultivation includes expenses incurred in field preparation, cost of seedlings, fertilizer, weeding, crop protection measures, irrigation water and harvesting with labour charges. The B: C ratio was found maximum (2.78) in Lalit cultivar with (80% RDF).

Keywords: Fertigation, Guava, UHDP, B: C ratio