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## DIVERSITY OF SOIL FUNGI FROM THE LOCALITIES OF NAGPUR DISTRICT

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**Abstract:** The diversity of soil fungi was recorded from the seven different localities of Nagpur District by employing the Warcup and Waksman method. A total of 2620 fungal colonies comprising of 16 fungal genera and 37 species were isolated from all the seven localities through the serial dilution method (Waksman method). In the Direct soil plating method (Warcup method), a total of 163 fungal colonies comprise of 9 genera and 20 species were recorded. Dominant fungi were found to be *Aspergillus*, *Penicillium*, *Rhizopus*, *Mucor*, *Curvularia*, *Acremonium*, etc. Shannon (H') diversity index was found to be more than one in Direct plate method whereas it is less than one in Serial dilution method. Simpson (1-D) diversity index was to be 1.2 to 2 in Direct plate method while that of it was only 0.5 to 0.7 in Serial dilution method.

**Keywords:** *Aspergillus*, Diversity, Fungi, *Penicillium*, soil.

## PHYSICO-CHEMICAL CHARACTERIZATION OF TWO FRESH WATER LAKES NEAR LAKHANI, DIST. BHANDARA (M.S.)

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**Abstract:** The present investigation was carried out in order to study the physico-chemical status of two Lakes viz. Rengepar (Kotha) and Purkabodi, near Lakhani. Lakhani is a small town 24km East of Bhandara. The study was carried out from October 2014 to September 2015. The following physico-chemical parameters D.O., free carbon dioxide, total dissolved solids, chloride, sulphate, total hardness, nitrate and total alkalinity were analyzed by using standard methods. The D.O. and Nitrates values reported maximum during winter and monsoon and minimum during summer and winter respectively, while Carbon dioxide, total dissolved salt, alkalinity, chloride, sulphate and total hardness reported maximum in summer and minimum in winter except total hardness where minimum value was found in monsoon.

**Keywords:** Fresh water Lakes, Lakhani, physico-chemical status.

## FORMATION OF FILAMENTOUS CONE DURING VITELLOGENESIS IN THE DRAGONFLY, *ICTINOGOMPHUS* *RAPAX* (ODONATA: GOMPHIDAE)

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**Abstract:** The posterior end of the egg of *Ictinogomphus rapax* bears a cone of densely coiled filament. This filament uncoils during oviposition in water to form a long whip-like thread that acts as an anchor for the submerging egg. Development of the cone during oogenesis starts during the mid-vitellogenic stage. The formation of the cone can be described in the six steps. In the first step there is an increase in the size of cells at the posterior tip of the eggs. In the second step these cells exhibit active secretion of endochorion so that a thick circular plate is formed at the base of the cellular cone. In the next step, a small cavity is formed in the cortical region of the cone and the cavity starts filling with endochorion matter. In the fourth step, the follicular cells of the cone start secreting fibrous strand. In the next step, the size of the cone increases and its lumen is filled with darkly stained fibrous strands which unite and appear as a long continues folded filament. In the last step, the floor of the cone undergoes anatomical modifications. A peg like chorionic extension "boss" develops at the centre of the cone floor to which the inner end of the filament is firmly attached.

**Keywords:** Egg, endochorion, exochorion, follicle cells, Gomphidae, *Ictinogomphus rapax*, Odonata, oogenesis, vitellogenesis.

## **CHRONIC TOXICITY INDUCED BY ENDOSULFAN ON FRESH WATER CAT FISH *CLARIAS GARIEPINUS*: BIOCHEMICAL AND HAEMATOLOGICAL CHANGES**

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**Abstract:** Endosulfan, an organochlorine pesticide is commonly used for the control of insect pests. Endosulfan is extremely toxic to fish and its use results in the disruption of the aquatic food chain. The aim of the present study was to analyse the chronic toxicity induced biochemical and haematological changes on fresh water catfish *Clarias gariepinus* by sublethal concentrations of endosulfan. Biochemical parameters assessed were protein, carbohydrate, acid phosphatase (ACP) and alkaline phosphatase (ALP). Significant decrease in carbohydrate and protein levels was observed in treated catfish when compared with the control group. Significant decrease in the levels of ACP activities was also observed in the treated catfish from lower to higher concentrations. Red blood cells of treated fishes shows irregularly spaced projections (acanthocytes) and change their shape. Teardrop shaped red blood cells (dacrocytes) were also found after 15 days treatment with endosulfan. Exposure to endosulfan at sub-lethal concentrations induced biochemical and haematological alterations in catfish. These parameters offer a rapid and sensitive means of monitoring the impact of pesticides on aquatic biota and ultimately whole of the ecosystem.

**Keywords:** *Clarias gariepinus*, chronic toxicity, biochemical parameters, endosulfan, haematological alterations.



## FOLIAR EPIDERMAL STUDIES OF SOME SPECIES OF FAMILY EUPHORBIACEAE

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**Abstract:** Foliar epidermal characters play very vital role in the life cycle of any plant species. Every plant have a different epidermal cell type, stomatal type, trichome type and even the size of these cells also vary from plant to plant. In present investigation, 36 plants species of family Euphorbiaceae were collected from the different localities of Nagpur and Amravati district and they were observed for foliar epidermal characters. Observations made from the 36 plant species of Euphorbiaceae shows amphistomatic leaves, anomocytic to paracytic type of stomata, multicellular uniseriate trichome, polygonal and pentagonal type of epidermal cells.

**Keywords:** Euphorbiaceae, foliar study, Stomata, trichome.

## HINDGUT HISTOMORPHOLOGY OF THE ADULT DRAGONFLY *BRADINOPYGA GEMINATA* (RAMBUR) (ODONATA: LIBELLULIDAE)

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**Abstract:** The hindgut of adult dragonfly *Bradinopyga geminata* (Rambur) differentiates into ileum and rectum. The ileum is a narrow tube like structure measuring 3 mm in length and 380µm - 450µm in diameter. The internal 6 longitudinal folds are of unequal height and project into the lumen irregularly. The epithelium of ileum consists of a single layer of cuboidal cells with finely granular cytoplasm. The inner surface of the epithelium is covered by a thick cuticular layer. The rectum is a slender sac like structure which posteriorly connects with the anal tube. It is 4mm long and well developed longitudinal muscles are arranged in 6 rows covering entire length of rectum. The circular muscles are also well developed. In adult dragonfly, the rectum epithelial cells have no absorptive features, but the rectal pads may be involved in water and electrolyte reabsorption.

**Keywords:** *Bradinopyga geminata*, hindgut, ileum, rectum.

**ASYMBIOTIC SEED GERMINATION,  
SEEDLING DEVELOPMENT AND TUBERIZATION OF  
*PERISTYLUS LAWII* WIGHT (ORCHIDACEAE),  
A RARE TERRESTRIAL ORCHID**

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**Abstract:** Anthropogenic impact on specific habitats results to the destruction of many key species of ecosystem. Terrestrial orchids grow in such specific undisturbed habitats and this makes the species rarer and prone to threat. Similarly *Peristylus lawii*, a terrestrial orchid grows in specific habitat at the base of the hills in shady places. Due to overgrazing and habitat destruction the population was confined to such places where grazing animals does not reach. In present investigation, six different media (Vacin and Went, Malmgren Modified Terrestrial Orchid Medium, Modified Knudson C, ½ Murashige and Skoog, Lindemann and Van Waes and Debergh (BM1) were used to identify the nutritional need of *Peristylus lawii*. The effect of photoperiod was analyzed for asymbiotic seed germination (0/24, 16/8, 24/0 h L/D) and in vitro seedling development (8/16, 12/12, 16/8 h L/D). Seed germination percentage was the highest on MM and BM1 after 18 weeks culture (MM - 90.1%) (BM1 76.66%) on 0/24 h L/D and 16/8 h L/D respectively. In vitro seedlings cultured under 16/8 h L/D conditions produced more height of the seedling (5.3cm), leaf length (2.1cm) and tuber length (3.43cm) and tuber diameter (0.16 cm). Tuber developed on higher concentrations of BA produced more tuber length (4mg/l - 4.1cm, 5mg/l - 4.5cm) and more fresh weight (673mg & 831mg respectively).

**Keywords:** Asymbiotic, seed germination, seedling, tuber, Terrestrial orchid.

## MEDICINALLY IMPORTANT WILD EDIBLE PLANTS OF EASTERN VIDARBHA

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**Abstract:** Explosion of population resulted into an inadequate availability of food resources such as cereals, pulses, vegetables and fruits to the individual. Documentation and spreading awareness of utilization of wild edible plants in the regular family diet may be a solution to overcome this alarming problem. Gondia has a land area of about 1.83% of Maharashtra state having 88% of population residing in rural region. Wild edible plant species are to be considered as main food resource for tribal and rural population residing at forest area. They use fruits, leaves, flowers, and roots of numerous plants. A survey was conducted in the rural region of Gondia district to document such plants. We found more than 25 wild plants to be in use either as vegetable or as staple food. We found plants of Fabaceae family like *Medicago sativa*, *Cassia tora*, *Smithia* sp. with some other family like Malvaceae, Lamiaceae and Marsileaceae. Plant parts like roots of *Clerodendron serratum* and *Chlorophytum borivilianum*, flowers of *Portulaca oleracea*, *Wrightia tinctoria*, *Smithia* sp. and *Celosia argentea* are used as food. Many of these plants are used for dual purpose like nutrition as well as for the treatment of various disease and disorders.

**Keywords:** Wild edible plants, medicinal uses, Gondia.

**POST EMBRYONIC CHANGES IN DIFFERENT CASTE OF  
WEAVER ANT, *OECOPHYLLA SMARAGDINA* (FABRICIUS)  
IN CENTRAL INDIA**

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**Abstract:** Asian weaver ant, *Oecophylla smaragdina* is a highly successful social hymenopteran species. It is dominantly found in tropical region of central India. The post embryonic metamorphic characters confirm four moultings, with five larval instars and the pupal stages developed into four types of polymorphic adults. The larval instars are typical Oecophylloid type and are characterized by apodous, curved body with apically placed mouth and postero-apical anus. The pupal stages divided into pre, early, mid and late shows few morphological changes in the structure. The adults are clearly divided into fertile and non-fertile caste, where the non fertile caste consists of minor and major worker whereas the fertile caste consists of drone (male) and queen (female). During brooding season, there are always a couple of alate queen adult socializing with each other before mating. The complete development of weaver ant from egg to adult occurs within a period of 32 days in the tropical zone of central India

**Keywords:** Ant, Hymenoptera, nesting behavior, *Oecophylla*, Oecophylloid.

**MOUTHPARTS SENSILLA OF THE WORKER ANT  
*LEPTOGENYS DENTILOBIS*  
(HYMENOPTERA: FORMICIDAE)**

**D. D. BARSAGADE, M. P. THAKRE, J. R. KIRSAN, S. B. NAGOSE,  
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**Abstract:** The mouthparts of the worker cast in the ant, *Leptogenys dentilobis* are directed forward and adopted for biting and cutting type. The mouth parts consist of broad lobulated labrum, mandible with sclerotized incisors and molar cups, palped laterally placed maxillae, and the labium which forms the lower lip. Scanning electron microscopic (SEM) studies of the mouthparts revealed the presence of two major types of sensilla. i.e. sensilla trichoidea and sensilla trichoidea curvata. These sensillae though present in all the mouth parts, exhibit variation in their morphology, density and number and are site specific.

**Keywords:** *Leptogenys dentilobis*, mouthparts, SEM, sensilla.

## EXPLORING PROCRASTINATION AMONG COLLEGE STUDENTS

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**Abstract** Procrastination involves delaying and putting off tasks and is increasingly prevalent among college students. Present study aimed to analyse the frequency of procrastination, and distraction, socializing, poor planning and fear of failure causes of procrastination among male and female college students. The sample of the study consists of 64 under graduate and post-graduate students, with equal ratio of male and female. A survey questionnaire was developed used for data collection. Then to measure sex difference in variables 2x2 Chi square test was computed. Results shows no significant sex difference in frequency of procrastination and its causes, except for socializing.

**Keywords** Causes, procrastination, students.

## WORK STRESS AND POSITIVE MENTAL HEALTH AMONG YOUNG WORKING ADULTS: A CORRELATIONAL STUDY

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**Abstract** The study examined the relationship between positive mental health and the various dimensions of occupational stress among 60 young male and female working adults (25 to 40 years). Using the Occupational Stress Index (SHRIVASTAV & SINGH, 1981) and Positive Mental Health Inventory (AGASHE & HELODE, 2008) were used to collect data from employees working in government, private, semi government institutions. Pearson's  $r$  was computed between positive mental health and the dimensions of occupational stress. Three of the twelve dimensions of occupational stress namely Role ambiguity (-0.54), total occupational stress (-0.35) and low status were significantly and inversely correlated with positive mental health. Role ambiguity and total occupational stress were significant at 0.01 level and low status at 0.05 level. Eight dimensions (role overload, role conflict, group pressure, responsibility, unprofitability, poor peer relations, intrinsic impoverishment, and unprofitability) had negative but non significant correlation coefficients and two other dimensions (strenuous work conditions and powerlessness) had positive non significant relationship with positive mental health. The study shows a relationship between high occupational stress and low positive mental health.

**Keywords** Low Work Status, Occupational Stress, Positive Mental Health, Role Ambiguity, Young Working Adults.



## HISTOLOGICAL STUDIES IN FRESH WATER CATFISH *CLARIAS GARIEPINUS* EXPOSED TO ENDOSULFAN

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**Abstract** Histopathological studies have been widely used as biomarkers in the evaluation of the health of fish exposed to the pesticides. Endosulfan, an organochlorine pesticide used for the control of insect pests is extremely toxic to fish and its exposure results severe structural damages to tissues of organism. The aim of the present study is to analyse the chronic toxicity induced histopathological changes on freshwater catfish *Clarias gariepinus* by sublethal concentrations of Endosulfan. The pesticide induces many lesions in the tissues namely gill, liver and kidney of the fish. The gills showed certain deleterious effects like thickening of secondary lamellae, epithelial cell erosion, formation of pilaster cell, necrosis and disintegration of structure and detachment of primary and secondary lamellae. The liver showed hemorrhage, rupture of blood vessel, non-nucleated and binucleated condition, multinucleated hepatocyte and loss of primary structure of hepatocyte. The kidney showed severe necrosis, swelling of lymphocyte and renal tubule, vacuolation of glandular epithelium, dilation of renal tubule and distorted glomerulus. It was also noted that the stress response of fish is species specific to Endosulfan.

**Keywords** Chronic toxicity, *Clarias gariepinus*, Endosulfan, Histopathology.