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CONTENTS

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DEVELOPMENT AND LIFE TABLE PARAMETERS OF UZI FLY, *EXORISTA SORBILLANS* (WIEDEMANN) (DIPTERA: TACHINIDAE), A PARASITOID OF *ANTHERAEA ASSAMENSIS* (HELFER) IN DIFFERENT SEASONS.

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ABSTRACT

Studies conducted for a period of three years (from May 2008 to April 2011) revealed that seasonal changes of temperature and relative humidity play a significant role on developmental period, percentage of hatching and adult emergence and life table parameters of uzi fly, *Exorista sorbillans,* a parasitoid of *Antheraea assamensis.* The average larval survivorship was the lowest of all four life stages. Reproductive expectation was maximum during autumn and winter and in succession percent infestation was high during winter and spring. The temperature range of 22 -32^0 c may be considered to fall within the optimum range of temperature for their development, survival and high reproductive potential. Interaction of temperature and humidity play important role in shaping the life table of *E. sorbillans.*

Keywords: *Exorista sorbillans,* Life Table, seasonal changes.

BIOCHEMICAL RESPONSE TO ARTIFICIALLY INDUCED ROT DISEASE (FLACHERIE) IN VARIOUS TISSUES OF ERI SILK WORM (*SAMIA RICINI* BOISED)

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ABSTRACT

Study was conducted to determine the pattern of metabolic adjustment in Eri silkworm, *S. ricini* Boised (Vth instar larval stage) against pathogenic invasion. The activity of Alanine aminotransferase (AAT, E. C.2.6.1.2) and Aspartate aminotransferase (AsAT, E.C. 2.6.1.1.) alongwith total protein and carbohydrate content were studied in various tissues of normal and artificially induced flacherie disease. The activity of the enzyme AAT decreased significantly in silk gland while activity of both AAT and AsAT recorded significant increase in the fat body. None of the enzymes showed any significant changes in the haemolymph. Though total protein content in both silk gland and fat body showed stability, a significant decrease in carbohydrate content was recorded in the silk gland and fat body. On the other hand, significant increase in the total protein and carbohydrate content was recorded in the hemolymph. In the present study, the host-disease interactions with respect to studied biochemical parameters are discussed.

Key words: Aminotransferases, carbohydrate, protein, flacherie disease.

SPATIAL DISTRIBUTION OF *NYMPHULA DEPUNCTALIS* GUENEE LARVAE (LEPIDOPTERA: PYRALIDAE), A PEST OF *ORYZA SATIVA* L.

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ABSTRACT

Rice caseworm, *Nymphula depunctalis* Guenee is a serious pest of paddy that attacks young rice plants in waterlogged paddy fields. Present study was designed to determine the spatial distribu-tion of *N. depunctalis* in farmer's rice fields of Dhemaji district, Assam and in 13 cultivars of *Oryza sativa* L. in a controlled experimental field and to study the influence of water level of paddy fields and the hill density of rice plants on spatial distribution of the larvae. Results of the variance to mean ratio (S^2/m), index of dispersion, Lloyd's mean crowding and regression analysis in Taylor's power law and Iwao's patchiness regression model indicated aggre-gated pattern of distribution of *N. depunctalis* larvae in farmer's field condition. The results of variance to mean ratio (S^2/m), index of dispersion, Lloyd's mean crowding, Taylor's power law and Iwao's patchiness regression indicated aggregated pattern of spatial distribution in different cultivars of *O. sativa* in controlled experimental field. The manner of oviposition of *N. depunctalis*, disability of the larvae to move to distant places, preference to different cultivars of *O. sativa,* water level and hill density of the rice field showed significant influence on the aggregated distribution pattern of the *N. depunctalis* larvae.

Key Words: *Nymphula depunctalis*, Population density, Spatial distribution, Variance ratio

INVESTIGATION ON CERTAIN ASPECTS OF THE LIMNOLOGY OF MAGURI BEEL

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ABSTRACT

A total of 14 limnological parameters of Maguri *beel* of Tinsukia district of upper Assam were recorded during 2007-2010. The parameters showed variation in different seasons of the year. Both positive and negative correlations were observed among the different parameters during the study period. Besides, the values showed that their presence were within the threshold limit.

Key words: Maguri *beel*, limnology, Assam.
Short Running title: Limnology of Maguri *beel*.

LENGTH-WEIGHT RELATIONSHIP AND CONDITION FACTOR OF POOL BARB, *PUNTIUS SOPHORE* (HAM) OF ASSAM, INDIA

H.Phukon and S.P. Biswas

ABSTRACT

The length-weight relationship and the condition factor for *P. sophore* were carried out for one year. A total of 150 fish specimens were collected for the study. Length-weight relationship and relative condition factor (Kn) was measured on the basis of their length groups from 4-8 cm in length and 1.7-7.05 g in weight collected from different wetlands of Dibrugarh district of Assam during January to December 2009-10.The 'b' value ranged from 1.37-2.75 for male and 1.06-2.55 for female.

Key words: Condition factor, length- weight, pool-barb, Assam

EVOLUTIONARY RELATIONSHIP STUDY OF METHYLTRANSFERASE (O-METHYLTRANSFERASE, EUGENOL O- METHYLTRANSFERASE, CHAVICOL O-METHYLTRANSFERASE AND ORCINOL O- METHYLTRANSFERASE) FROM AROMATIC MEDICINAL PLANTS

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ABSTRACT

The substrate specific methyltransferase enzymes are rapidly evolving, because simple mutation in the active site changes the specificity of the enzyme. The relationship among the methyl transferases and substrate specific methyl transferases of aromatic plants is the key to understand the question of their adaptation to changing environment or changing substrates. A clear relation of eugenol *o*-methyltransferases (EOMT) and chavicol-*o*-methyltransferases (CVOMT) is observed where these are supposed to be paralogous. It is also found that CVOMT has evolved from EOMT. There may be individual lineages for different aromatic plants. Probably the rapidity in the evolution of these enzymes is responsible for easy adaptation of the different aromatic plants.

Key words: Aromatic plants, Methyl transferases, Paralogous

RAPD BASED MOLECULAR DIVERSITY STUDY OF AMYLASE PRODUCING BACTERIAL STRAINS ISOLATED FROM THE SOIL OF DIBRUGARH DISTRICT OF ASSAM

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ABSTRACT

Large numbers of bacterial colonies were isolated from the soil samples of Dibrugarh district. The morphological and biochemical characters of twenty active strains were carried out. Few of the bacterial strains produce alpha amylase which has got useful properties in industry and agriculture. Molecular characterization based on Random amplified polymorphic DNAs (RAPD) profiling of the alpha amylase producing bacterial strains (Twenty strains) was performed using random primers. Among these, five active alpha amylase producing bacterial strains were identified as *Bacillus cereus, Bacillus subtilis, Bacillus thuringiensis, Bacillus sp.*, and *Pseudomonas stutzeri*. Characterization of the crude amylase enzyme was conducted.
Key words: *soil, bacteria, PCR, RAPD, amylase, industry, agriculture.*

A CLINICAL STUDY OF SYSTEMIC LUPUS ERYTHEMATOSUS IN THE UPPER ASSAM

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ABSTRACT

Systemic Lupus Erythematosus (SLE) is a multisystem autoimmune disease primarily occurring in young women and characterized by varied clinical and laboratory manifestations. Severity ranges from a milder disease with rash and arthritis to a devastating illness with renal failure; central nervous system and cardiovascular system involvement. It is an autoimmune disease in which organs and cells undergo damage mediated by tissue-binding autoantibodies and immune complexes. (Hahn et al, 2008). It is a clinical syndrome with a complex, multifactorial aetiology, characterized by inflammation and the involvement of most of the organs or systems of the body. It is subjected to many remissions and exacerbations. Although the musculoskeletal system and skin are invariably affected, it frequently gives rise to manifestations in the kidney, CVS, lungs, CNS, etc. (Rahman et al, 2008). The exact cause of SLE till today is not known completely. There is evidence that autoimmunity plays an important role in the pathogenesis of SLE. Genetic factors, immune system abnormality and environmental factors may contribute for the development of the disease. Family studies suggest that simultaneous inheritance of two or more genes linked to DRW2 and DRW_3. are important in determining the expression of SLE (Stahl et al, 1979). There is an abnormal immune response in SLE leading to production of pathogenic subsets of autoantibodies and immune complexes which cause tissue or cell damage either directly or via activation of complement system (Hahn et al, 2004). There is multiple functional defects among cells of the immune system - T and B lymphocytes, natural killer cells and accessory cells (antigen presenting cells) (Smith et al, 1955) In the present study, it is tried to examine the clinical profile of SLE patients at Assam Medical College Dibrugarh which is a tertiary centre in the Upper Assam, North East India.

Key words: Systemic lupus erythematous (SLE), North East (NE), cardiovascular Disease (CVD), Double stranded DNA (ds DNA).

SOME ETHNOMEDICINAL PLANTS USED BY THE TAI AHOM OF DIBRUGARH DISTRICT, ASSAM

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Assam is one of the Indian states situated in the north east corner of India. Within Assam, Dibrugarh district is located in the eastern part of Assam and is situated between 275 east latitude, covering an area of 3301 sq. km., with a total population of 11, 72,056. The district is surrounded by Dhemaji district of Assam in north, Tinsukia district of Assam in the east, Sivasagar district of Assam and Arunachal Pradesh in the south and Sivasagar district in the west. The soil of the district is mainly alluvial, deposited by river Brahmaputra and its tributaries. Relatively long rainy season, high humidity and moderate to high temperature are suitable factors for luxuriant growth of the vegetation in the district. The Tai Ahom of of Mongoloid origin is the one of the major ethnic groups of this district. They are rich in knowledge associated with ethnobotany. In order to document ethnomidicinal plants used by the Tai Ahoms a study was conducted between 2010 and 2011. A number of *bej* and *bejini* s (local medicine men & women) were contacted and medicinal informations were collected. Efforts have been made to see the plants in wild and collect plant specimens with their reproductive parts. Herbarium sheets were prepared according to conventional herbarium technique as suggested by Mitra(1974). Collected plants were identified with the help of Flora of Assam (1934-40) and were deposited to herbarium of Botany Department, Dibru College, Dibrugarh, Assam. Ethnomedicinal plants which are used for treatment of different diseases are presented below and the names of the diseases are arranged in alphabetical order.
Eral grants for raising ethnobotanical plant gardens in this area. Awareness should be created among the local people about the usefulness of the plants in general and ethnobotenically important plants in particular.