WASTE GENERATION AND UTILIZATION

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CHAPTER - 5

Municipal Solid Waste Management in India with Special Reference to Silchar, A City of North East India

Siddhartha Bhattacharjee and Susmita Gupta

ABSTRACT

This chapter described the development of the concept of solid waste management from ancient to pre-independent to post-independent India followed by Municipal Solid Waste Management (MSWM) and MSW (Management and Handling) Rules, 2000. The concept of Integrated Sustainable Waste Management (ISWM) consisting of three dimension of sustainability such as: stakeholders (city council, NGOS, etc.), system elements (waste collection, separation at source etc.,) and aspects (technical, environmental, etc.,) also has been explained. A comparative analysis of the solid waste management of four capital cities of North East India and the city Silchar of South Assam in particular has been made.

The study focused on the nature, biomass and physico-chemical characteristics of the solid waste of Silchar and found that there is larger proportion of organic matter in MSW of Silchar city along with optimum moisture content indicating the desirability of biological processing of waste. The study revealed that poor collection and inadequate

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Chapter 4

Sensory Structures on Caudal Lamellae and Tergites of Damsel Fly Larva *Ischnura senegalensis* (Zygoptera : Odonata) as Revealed by Scanning Electron Microscopy

Susmita Gupta*

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ABSTRACT

Cuticle dominates the arthropod ways of life and cuticular structures such as different types of sensilla provide a basis for understanding the relationship between their morphology and function. This paper describes the cuticular morphology of the 8°,9° and 10° tergites and caudal lamellae of a damselfly species Ischnura senegalensis (Charpentier) (Zygoptera: Odonata) as revealed by Scanning Electron Microscopy. The study revealed that the caudal gill is formed of a tough, chitinous cuticle. The mid rib of the caudal gill is armed with series of stout sensory structures sensilla basiconica (Sb1). The dorsal and ventral edges are equipped with spine like and hooklike sensilla basiconica (Sb 2). In the central portion of the lamellae there are a few very long pliable sensilla trichoidea (St 1). Among the last three tergites only 10° tergite is having spiny margin and posterior extremities of the three tergites are provided with several short Sensilla basiconica (Sb 1). In the lateral side of the 9° tergite a prominent hair plate is seen with

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Chapter 17

Biodiversity of Chakrashila Wildlife Sanctuary, Western Assam, India: Major Issues in Conservation

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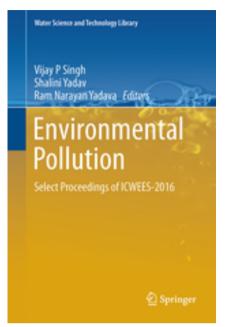
ABSTRACT

Biodiversity is the degree of variations of life forms within biome or ecosystems. Northeastern India is very rich in biodiversity, harboring many endemic plant and animal species. It falls in Eastern Himalayan region. Knowledge of the fauna of this region is poor. Most of the information available is on the larger vertebrates that are easily observed and inventoried. The smaller mammals, reptiles, amphibians, and fishes have been neglected and the most abundant taxonomic group, the insects, have been virtually ignored. Chakrashila Wildlife Sanctuary is the home of the endangered primate Golden langur (Trachypithecus geer) in India. The sanctuary is also rich in flora and fauna. The water bodies of the Sanctuary attract many migratory birds in winter season each year. The Sanctuary is identified as Key Biodiversity Area for addressing the conservation of biodiversity of the Sanctuary. Very few studies on biodiversity of this Sanctuary have been carried out so far. The growing population in the surrounding villages is having immense pressure on the resources of the sanctuary finally leading to habitat degradation and biodiversity loss. Thus the habitat of the Sanctuary has to be conserved for the conservation of genetic diversity.

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Aquatic Insects as Pollution Indicator—A Study in Cachar, Assam, Northeast India

Arpita Dalal and Susmita Gupta

Abstract A seasonal study on water and aquatic insects of one oxbow lake (Satkorakandi anua) and one floodplain lake (Magura haor) of Cachar, Assam was conducted. Environmental variables of water, diversity, and density of aquatic insects were estimated by standard methods. In the oxbow lake, dissolved oxygen values were found to be lower than that of the floodplain lake. The pH of water was found below the acceptable limit of BIS in post-monsoon in oxbow lake, and in most of the seasons in floodplain lake. Other variables were within the permissible limit. The Biological Monitoring Working Party (BMWP) and BMWP^{THAI} scores computed on the basis of tolerance level of the aquatic insects to organic pollution revealed poor water condition in all the sites and seasons in anua while in haor water condition was found moderate in some seasons of the year. Different biotic indices, correlation coefficients, canonical correspondence analysis were computed and the role of aquatic insects as pollution indicator has been discussed in the paper.

Keywords Aquatic insects · Anua · Haor · Biotic score · CCA

Introduction

Freshwater ecosystems are most endangered ecosystems of the world (Dudgeon 1999) and declines in biodiversity are far greater in freshwater than any other ecosystem of the world (Sala et al. 2000). Aquatic insects are important in freshwater systems as they support the terrestrial lives through aquatic maintenance of food chains and also serve as indicators of water quality due to their varying tolerance limits to organic and inorganic substances (Bass 1994; Mason 2002). Use of insects and/or their differential responses to stimuli in their aquatic habitat to determine the quality of that environment is known as Biomonitoring (Arimoro and Ikomi 2008; Merritt et al. 2008).

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