A PRELIMINARY STUDY ON WATER BEETLES OF AMEENPUR LAKE, HYDERABAD

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ABSTRACT
The present preliminary study is a part of Annual programme “Aquatic insects of Hyderabad wrt to molecular characterization of family dytiscidae” (2012-2015). More than 223 species of aquatic coleopteran are known from India, only 26 species of aquatic beetles are reported from the present preliminary study on Ameenpur lake. The aquatic coleopterans are highly diverse and distributed, only four families namely Dytiscidae, Gyrinidae and Hydrophilidae and Haliplidae are chiefly represented in the present preliminary report of Ameenpur lake, Hyderabad. More intensive survey spread over different seasons would be required to provide a complete picture of the aquatic beetle diversity of this area.

Key Words: Aquatic Coleoptera, Dytiscidae, Systematic List, Beetle Diversity

INTRODUCTION
The state Andhra Pradesh has about 366609 ha extent of inland water bodies of India. Hyderabad has 501 lakes and 3,086 tanks and several ponds and pools. Hyderabad city in Andhra Pradesh is located in the heart of Deccan plateau of the India at latitude 17° 20’ N and longitude 78° 30’E. It is spread over 1552 km and includes a major wetlands which constitutes lentic and lotic freshwater resources. Among lotic resources, the main river Musi passes through the city. The study on beetles was undertaken on four important man made lakes of Hyderabad which differ significantly in their nutrient status. The lakes studied were Bandakum cheruvu, (eutrophic lakes), Himayat sagar, (oligotrophic lake) and Ameenpur lake (mesotrophic lake). In the present report, the beetle collections of Ameenpur lake are given.

Order Coleoptera, or beetles, is represented by some 3,50,000 known species (Lawrence et al., 1982), but recent estimates suggest there are hundreds of thousands or even millions of undescribed species. Although the vast majority of beetles are terrestrial, it is estimated that about 18,000 species of aquatic Coleoptera are present on the earth at present. About 12,600 (70%) of these are already described. About 30 beetle families have aquatic representatives, and in 25 of these families at least 50% of the species are to be considered as aquatic. Six families are supposed to include 1,000 or more aquatic species: Dytiscidae (3,908 described species/5,000 estimated), Hydraenidae (1,380/2,500), Hydrophilidae (1,800/2,320), Elmidae (1,330/1,850), Scirtidae (900/1,700) and Gyrinidae (750/1,000). Scirtidae and Hydraenidae, Haliplidae, are regarded as the least explored families. (Jäch and Balke, 2008).

Although aquatic coleopterans are highly diverse and distributed to nearly 30 families, but only four families namely Dytiscidae, Gyrinidae Hydrophilidae and Haliplidae are chiefly represented in the present report of lakes of Hyderabad. The members of the family Dytiscidae (Predacious diving beetles) have adapted perfectly well to aquatic life. All adults and larvae are aquatic. The members of family Gyrinidae (Whirlig beetles) are found in fresh water ponds, lakes, open flowing streams etc. When the Gyrinid beetles are swimming on the surface of the water, the dorsal portion of the eye is in air, and the ventral portion in water. The Hydrophilids (water scavenger beetles) are predominant in rivers and streams. The members of Haliplidae(crawling water beetles) live among aquatic vegetation along the edges of ponds, lakes streams or creeks. The water beetles show wide diversity of colour, form and life
pattern. (Vazirani, 1977). The earlier knowledge and scientific contribution on aquatic beetles (Vazirani, 1977, Mukhopadhyay, 2007) are noteworthy to understand the present fauna.

**MATERIALS AND METHODS**

During the course of local surveys in connection with studies on the lakes of Hyderabad during April - December, 2012, Ameenpur lakes was surveyed apart from other lakes i.e. Bandakum cheruvu, Himayat sagar and Hussain sagar etc. (Figure 1). The insect collections was made with the help of hand operated nets of varying sizes by randomly netting different areas of wetland. While surface floating/ swimming insects were collected with small circular nets made of either coarsely meshed cotton cloths or finely meshed polyester mosquito curtain cloth. Macrophytes associated insects were collected with help of hand operated ‘D’ framed sweep net of the size of 50 cm length, 25 cm maximum breadth of the ‘D’. The frame was attached to a bag net made of fine malmal cloth with mesh size of approximately 200µ. Insects collected for study were preserved in 70% alcohol. Aquatic coleoptera were identified by literature on group by Vazirani (1970, 1984), Biswas and Mukhopadyaya (1995).

**Figure 1: Different collection localities of Ameenpur lake, Hyderabad.**
RESULTS AND DISCUSSION

Local surveys were carried to Ameenpur Lake, (April-December 2012). During this period aquatic insects were collected and systematic studies were carried out. The preliminary study comprised of 26 species of aquatic coleoptera accommodated under four families. Aquatic coleopterans are highly diverse and distributed, only four families namely Dytiscidae, Gyrinidae and Hydrophilidae and Haliplidae are chiefly represented in the present report of lakes of Hyderabad. The diversity of insect fauna in different wetland types varied widely which was dependant on availability of macrophytes and general physico chemical conditions of water.

Systematic List

Order: Coleoptera

I. Family: Dytiscidae

Subfamily: Hydroporinae

Tribe I: Hydrovatini

Genus 1. Hydrovatus, Motschulsky, 1855
1. *Hydrovatus confertus* Sharp, 1882

Tribe II: Bidessini

Genus 2. Guignotus Houlbert, 1934
2. *Guignotus flammulatus* Sharp, 1854

Subfamily: Notorinae

Tribe Hydrocanthini

Genus 3. Canthydrus Sharp, 1882
3. *Canthydrus laetabilis* Walker, 1882
4. *Canthydrus morsbachi* Wehncke, 1876

Genus 4. Hydrocoptus Motschulsky, 1859
5. *Hydrocoptus subvittulus* Motschulsky, 1859

Subfamily: Laccophilinae

Genus 5. Laccophilus Leach, 1817
7. *Laccophilus ellipticus* Regimbart, 1899

Subfamily: Dytiscinae

Tribe I : Cybisterini

8. *Cybister (Melanectes)tripunctatus asciaticus* Sharp, 1899
9. *Cybister (Melanectes) convexus* Sharp, 1882

Tribe II : Eretini

10. *Eretes sticticus* (Linnaeus, 1833)

Tribe III: Hydaticini

11. *Hydaticus (Guignotites) fabricii* Macleay, 1833
12. *Hydaticus (Guignotites) vittatus* (Fabricius, 1838)

II. Family: Gyrinidae

Subfamily: Enhydrinae

Genus 9. *Dineutus* Macleay, 1825
13. *Dineutus (Protodineutus) indicus* Aube, 1838

Subfamily: Gyrininae
It is presumed that further intensive seasonal surveys to many more wetlands belonging to different types and detailed taxonomic studies may reveal some species which may be significant both ecological and taxonomically. Further studies aiming to improve our knowledge on water insects should focus on collecting in little known areas, revision of the still unstudied material from additional families and filling the large gaps in our knowledge regarding the diversity of water beetles in some specific habitats.

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REFERENCES
Research Article


