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A PRELIMINARY STUDY ON WATER BEETLES OF AMEENPUR LAKE, HYDERABAD

***Deepa Jaiswal**

Zoological Survey of India, Freshwater Biology Regional Centre, Hyderabad - 500 048

**Author for Correspondence*

ABSTRACT

The present preliminary study is a part of Annual programme “Aquatic insects of Hyderabad wsr 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 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

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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 200 μ . 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.

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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

6. *Laccophilus elegans* Sharp, 1882

7. *Laccophilus ellipticus* Regimbart, 1899

Subfamily: Dytiscinae

Tribe I : Cybisterini

Genus 6. Cybister Curtis, 1827.

8. *Cybister (Melanectes) tripunctatus asiaticus* Sharp, 1899

9. *Cybister (Melanectes) convexus* Sharp, 1882

Tribe II : Eretini

Genus 7. *Eretes* Castelnau, 1833.

10. *Eretes sticticus* (Linnaeus, 1833)

Tribe III: Hydaticini

Genus 8. *Hydaticus*, Leach, 1817.

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

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Genus 10. *Gyrinus* Geoffroy, 1762

14. *Gyrinus convexiusculus* Macleay, 1871

Subfamily: Orechtochilinae

Genus 11. *Orechtochilus* Eschscholtz, 1833

15. *Orechtochilus* (*Patrus*) *semivestitus* Guerin, 1893

16. *Orechtochilus* (*Patrus*) *discifer* (Walker, 1859)

III. Family: *Hydrophilidae*

Subfamily: *Hydrophilinae*

Tribe I: *Hydrophilini*

Genus 12. *Hydrophilus* Leach, 1764.

17. *Hydrophilus olivaceous* (Fabricius, 1781)

Tribe II: *Hydrobini*

Genus 13. *Helochares* Muls., 1844.

18. *Helochares anchoralis* Sharp, 1890

Genus 14. *Enochrus* Thoms., 1859

19. *Enochrus esuriens* Walker, 1858

Tribe III: *Berosini*

Genus 15. *Regimbartia* Zaitz., 1908

20. *Regimbartia attenuate* Fabricius, 1801

Genus 16 *Berosus* Leach, 1817

21. *Berosus indicus* Mots., 1861

22. *Berosus pulchellus* Macleay, 1825

Subfamily: *Hydrochinae*

Genus 17. *Hydrochus* Leach, 1817.

23. *Hydrochus bindosus* Mots., 1860

Subfamily: *Sphaeridiinae*

Tribe I: *Sphaeridiini*

Genus 18. *Dactylosternum* Woll., 1854

24. *Dactylosternum abdominale* Fabricius, 1792

Genus 19. *Sphaeridium* F., 1775

25. *Sphaeridium dimidiatum* Gory, 1834.

IV. Family: *Haliplidae*

Genus 20. *Haliplus*

26. *Haliplus*(*Liaphlus*) *pulchellus indicus* Regimbart, 1899.

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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