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HYDROPHILID BEETLES OF KUMAON, GARHWAL AND AGRA REGIONS WITH SPECIAL REFERENCE TO THEIR EXTERNAL GENITAL ORGANS

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Abstract: Some of the important work on taxonomy on aquatic and terrestrial beetles pertaining to the present survey are done mainly by sharp (1890), Regimbert (1903), d'Orchymont (1925, 1928) etc. These are predaceous in nature and overall 2 genera and 3 species concerning the super family Hydrophiloidea (Coleoptera : Hydrophilidae) tribe - Hydrophilinae were collected in the Kumaon, Garhwal and Agra regions.

Keywords: Aquatic, terrestrial, beetles system account and taxonomic nomenclature, Polyphaga.

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INTRODUCTION

Hydrophilidae are commonly known as “water scavengers beetle” inhabit shallow water with emergent vegetation and vascular hydrophytes, grass growing water and also live upon decomposing vegetable matter. They are also good swimmer but not as active as many of the Dytiscidae. The adults swim by alternate movement of hind legs. Adults are active flyers and large numbers may be attracted to light. They renew their air supply by breaking the surface film with unwettable hairy clube of antennae and side of the Head; this allow gas exchange along the plastron and air passes on the ventral surface of the thorax. Most adults are omnivorous consuming both living and dead material. Except a few genera larvae are not very common. The larvae climber and poorer swimmer and generally found on soil near water edge. There are predaceous in nature. The common genera recorded from the wetland surveyed are *Enochrus*, *Helochares*, *Sternolophus*, *Hydrophilus*, *Amphiops* and *Regimbertia*.

MATERIALS AND METHODS:

The materials for the present study were collected during the period 1991-1992 in three ecological different wetlands of Kumaon, Garhwal and Agra regions. The collection has been made from different habitates eg. Surface water, column water, bottom mud aquatic weeds and bank of water at regular intervals using different collecting equipments such hand net, light traps, hand picking sweeping net.

Taxonomy:

Super family : Hydrophiloidea

Family : Hydrophilidae

Tribe : Hydrobiini

Key to genera *Helochares* (Mulsant) and *Enochrus* (Zaitzev)

- 1 (2) Maxillary palpi rather short, never very long, with 2nd joint convex on anterior side and concave posteriorly, the last joint bending outwards. Eyes rounded. A suture stria at least antennae 9-jointed.....*Enochrus*.
- 2 (1) Last joint of maxillary palpi shorter than preceding, of not antennae are 9-jointed the palpi are very short and the size is small subg. Agraphydrus. Shape of body never navicular or shield-like. Elytra sometimes striate-punctuate (*Hydrobaticus*), or with a single, sutural but in the last case maxillary palpi are very elongate (*Chasmogenus*).....*Helochares*.

Key to species of the genus *Helochares* (Sharp) .

- 1 (2) Elytral interval closely but finally punctured ***Anchoralis*** .
- 2 (1) Elytral interval smooth ***lentus*** .

***Helochares anchoralis* (Sharp)**

Diagnostic characteristics: elongated, moderately depressed and dark brown with blackish patches. Head-small, densely, punctate, dark posteriorly and with Y-shaped frontal suture. Maxillary palpi yellow and eyes normal, antennae 9 segmented, last segment elongate and densely pubescent. Prothorax-transverse and densely punctate. Scutellum-small, triangular. Elytra-densely and evenly punctate, finely striate. The striate nearly obliterated at the base, deeper at the extremity. Legs-simple with distinct claws and spines 1st segments of the hind tarsi very short and the 2nd segments longer and claws with a basal swelling and a characteristic empodium. Ventral surface-dark brown, punctate and finely pubescent (Plate-I).

Size: 5 mm in length.

Genitalia: Phallobase broadly, rounded, parameres slender, very slightly conical, strongly, broadened, in proximal third with a basal process on either side, aedeagus broadly, bifid, apically.

Distribution: Agra, Etah, Kasganj (U.P.)

Material Examined: 2 Male and 5 female Agra, Etah, Kasganj (U.P.) 26. VIII. 1990. Coll. Saroj, S.K.

Remarks: These beetles are found in widely shallow and marshy places and also occur in the mud just above the water edge. The female of this species is easily recognized by the eggs mass which is enclosed in a nearly transparent bag shaped case beneath abdomen. These are quite common in blackish water and less so in sewage fed water.

***Helochares lentus* (Sharp)**

Diagnostic characteristics: Elongate, oval, strongly, convex, moderately, depressed and dark brown with blackish patches. Head-narrow, small, densely, punctate dark, antennae 9 segmented, 1st segment elongate, maxillary palps yellowish. Prothorax-closely and rather coarsely punctured, a little narrowed in front, hind angles rounded. Scutellum-small and triangular. Elytra-with moderately distant rather five puncturation and also with very distinct series of much larger punctures, both the serials and diffuse puncturation are diminished

behind. Meso-sternum with a feeble swelling at its apex. Legs-rather feeble, 5th segment long, claws small, horse shoe shaped. Ventral surface-dark brown and pubcent (Plate- II)

Size: 4.2 mm in length.

Genitalia: Phallobase short, somewhat triangular, parameres stout with slender, 3rd and dark aedeagus club with apex slightly and bluntly bifid.

Distribution: Etah, Pohia Ghat, Agra (U.P.) .

Material Examined: 10 Male, Etah, Pohia Ghat Agra (U.P.). 26. VII. 1990. Coll. Saroj, S.K.

Remarks:

This species related to *Helocharas anchoralis* (Sharp) but it differs only elytral interval closely but finally punctured. This species is found in mud and commonly blackish water and less so in sewage-fed water.

Enochrus spp. (Zaitzev)

Diagnostic characteristics:

Oval, slightly more broadly and widely rounded behind and reddish brown. Head-black with yellow somewhat triangular spot in front of eyes. Eyes normal. Antennae yellowish 9 segmented, clubs darker and densely pubcent. Prothorax-reddish brown, rather densely and finely punctate. Scutellum-triangular. Elytra-cone colours with prothorax interstitial punctures smaller than serial punctures. Legs-simple, provided with hairs and spines. 5th segments of tarsi equal to 1st, middle two segments small and equal shape and size claws simple. Ventral surface-black (Plate-III).

Size: 3.0 mm in length.

Genitalia: Phallobase elongated, broad, gradually narrowed towards base, parameres stouts, but narrowed to end in clubbed apices aedeagus bulging apically but ending bluntly with a small conical apical process.

Distribution: West Almora, Haldwani, Ranikhet, (Kumaon) Agra (U.P.).

Material Examined: 8 male Ranikhet, West Almora, Haldwani (Kumaon). 26.VIII. 1992. Coll. Saroj, S.K.

Remarks: This species is known to occur in littoral water in the present survey. These beetles have been collected from weedy shallow areas of water, damp places and muddy edges of

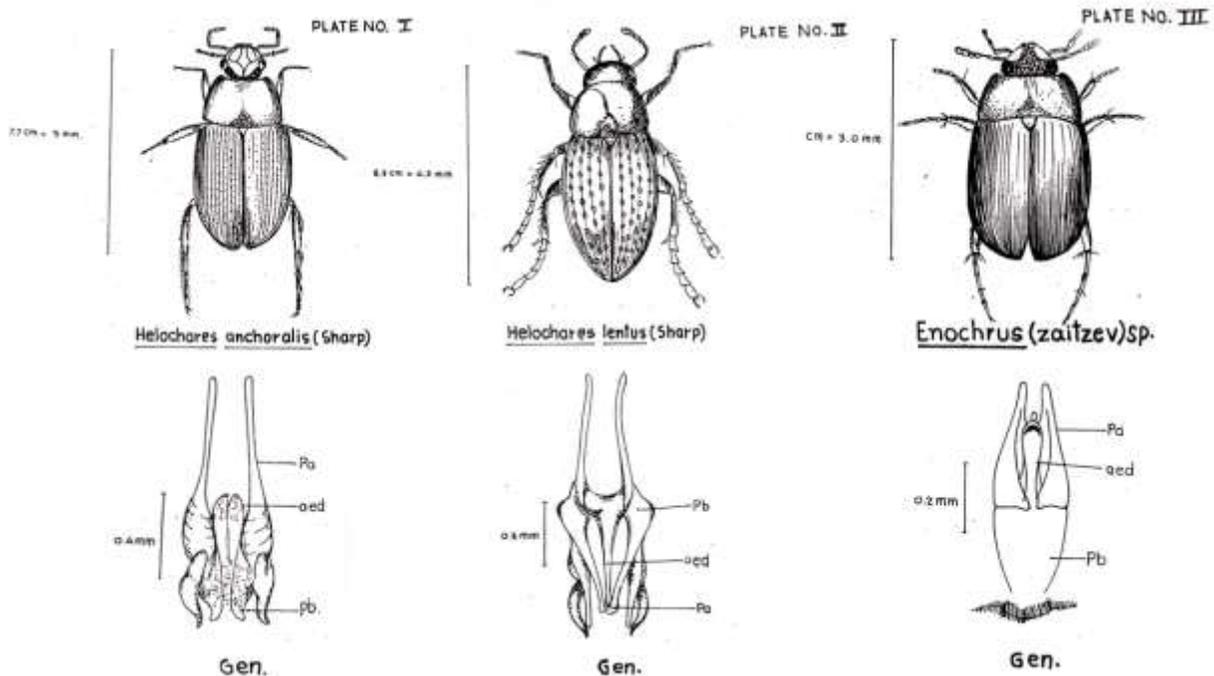
water. They abundantly occur in blackish water but bless so in fresh water and sewages-fed water.

DISCUSSION:

The present account deals with 3 species belonging to 2 genera collected from various districts of Kumaon , Garhwal (UK) and Agra regions (UP). These Beetles are widely distributed throughout the various Districts. The present investigation is mainly based on taxonomy of Hydrophilid beetles with special reference to their genitalia. The previous classifications of these beetles were based on the experimental genital characters like colour marking, number of segment of antennae, shape of elytra etc. But in recent investigations , it is found that beside the above taxonomical characters the very important taxonomical characters are the external genital organs which are neglected so far to be a very important and non-changeable characters on which the correct key for the identification can be made.

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REFERENCES

1. Knish, (1924). *Enochrus iterus* .Wien. Ent. Zait. . 12: 38.
2. D. Orchymont, (1925). Hydrophilidae of India (Col.). A list of the species in the collection of of the Agricultural Research Institute at Pusa (Bihar). mem. Dept Agr. 8: 12.
3. Sharp, (1890). *Enochrus iterus* .Trans . Ent. Soc. Ceylon. London P: 349.
4. Sharp, (1890). *Helochares anchoralis* .Trans. Ent. Soc. London. P: 52.
- Regimbert. (1903). *Helochares anchoralis*. Ann .Soc. Ent . Fr .72: 54
5. Sharp, (1890). *Helochares lentus* .Trans .Ent .Soc . London P: 352.
6. D. Orchymont, (1913). *Helochares lentus*. Suppl. Ent. 2, 5