



INTERNATIONAL JOURNAL OF PHARMACEUTICAL RESEARCH AND BIO-SCIENCE

TAXONOMIC STUDIES OF THE GENUS *AMPHIOPS SP. MIRABILIS* AND *SP. PEDESTRIS* TRIBE-AMPHIONI (COLEOPTERA: POLYPHAGA) FAMILY HYDROPHILIDAE FROM KUMAON, GARHWAL AND AGRA REGION WITH SPECIAL REFERENCE TO EXTERNAL GENITAL ORGANS

S. K. SAROJ

Department of Agriculture Zoology and Entomology R.B (PG) College, Mudi Crossing, Jalesar Road, Agra

Accepted Date: 25/01/2018; Published Date: 27/04/2018

Abstract: Taxonomy of the genus *Amphiops* is presented in this paper with special reference to *Amphiops mirabilis* (Regimbert, 1903) and *Amphiops pedestris* (Sharp, 1890) for the first time in Kumaon, Garhwal and Agra region. A key description and photographs of diagnostic characters and habits of known *A. mirabilis* and *A. pedestris* species are provided.

Keywords: Aquatic beetles systematic account and taxonomic nomenclature, Polyphaga.



PAPER-QR CODE

Corresponding Author: S. K. SAROJ

Access Online On:

www.ijprbs.com

How to Cite This Article:

S. K. Saroj, IJPRBS, 2018; Volume 7(2): 1-5

INTRODUCTION

The genus *Amphiops* belongs to tribe *Amphioni* and contains one genera and 2 species described from the Kumaon, Garhwal and Agra region. These species of *Amphiops mirabilis* and *Amphiops pedestris* are specialized parasite of algae. But these are polyphagous and truly aquatic and found walking on algae in all the three types of water. Generally the adults are in the habits of feedings on the decomposing matter, green vegetables, plants are sometimes serious agricultural pests. A few species are known to be predaceous on insects water snail and probably on their aquatic animals. The male genitalia are trilobed, penis and parameres are well developed, pars basal are small to large. Aedeagus is generally simple and primitive. It never the less provides several important distinguishing characters on the median lobe and on the parameres. These are the sclerotized structures in the internal sac except for a fringe of hairs like spines at the distal opening. Female genitalia have the proctiger, paraproct, valvifer coxite and stylus. The 10th sternite is present. No attempt has ever been made to use the female genitalia as diagnostic character. They seem to look very much alike in all species. There is apparently no secondary sexual character present. The sex of the specimen, unless the genitalia protruded from the abdomen can be determined only by dissection. In this study, we recorded two species *Amphiops mirabilis* (Regimbert, 1903) and *Amphiops pedestris* (Sharp, 1890) from various three regions. We provide a key, photographs and diagnostic characters.

Material and methods

Family Hydrophilidae which include water scavengers beetles these are found walking on Algae, mat during January to March, when algae on water, lakes, Streams, rivers. A few species are known to be *Amphiops mirabilis* and *Amphiops pedestris*. They are rather common in all the three types of water.

Process of collection: Hydrophilid beetles were collected by the following process:

- (A) **By Hand:** The Hydrophilid beetles were collected by hand in the day and night time on the bank of rivers, Lakes and ponds, under the stones, dung's, algae and among fungi.
- (B) **By Hand Net:** These Hydrophilid beetles collected with the help of net, in the pond, lakes, rivers and streams .many species of beetles were collected using net.
- (C) **Light traps:** light traps are generally used against those insects .which are attracted towards light .for this purpose a strong light may be placed or hanged in the field above a container having kerosinised water . A large number of insects attracted on the light will be killed in the kerosinised water. These beetles were collected easily from this trap.

Methods of preservation:

The material was collected largely by author. They were kept immediately Naphthalene tab, Peradichlorobenzene, or 10% Alcohol. All substances which are found to be a good preservatives. After determinating. The Hydrophilid beetles were pinned and labelled as usually kept in the Entomological boxes.

Taxonomy-

Family Hydrophidae

Sub-family: Amphiopinae

Key to species mirabilis (Erichson) and pedestris (Sharp)

1(2) Elytra with irregular rows punctures..... *mirabilis*.

2(1) Elytra with regular rows of punctures*pedestris*.

Amphiops mirabilis (Erichson)

DIAGNOSTIC CHARACTERS:

Strongly convex, roundish, brown to blackish brown and puncturation large and dense .Head – transverse (exposed part) puncturation mixed with large and small punctures, eyes divided by a conspicuous and complete conthus reaching the vertex ,antennae 8 segmented (5+3).last 3 segments pubescent 2nd segment of maxillary palpi markedly thickened. Prothorax –transverse, puncturation on vertex of pronotum, moderately mixed with small with small and large punctures lateral sides comparatively more densely. Scutellum –long, triangular and punctate Elytra – with irregular rows of punctures, puncturation interstices mixed with small and large punctures, that of near sutures rather in distinct. Legs –simple armed with spines .Posterior legs without swimming hairs.1st tarsi segment short, ventral surface – blackish brown. (Plate no. –I)

SIZE: Length = 5 mm

GENITALIA: Phallobase very small almost rectangular, parameres long, slender, curved apieces rounded, aedeagus long, slender, cylindrical, with a broad conical, apical process.

DISTRIBUTION: Haridwar (Garhwal region) UK.

Material Examined: 1 male Haridwar (Garhwal region) UK. 28. VII. 1992 Coll. Saroj S.K.

Remarks: These species truly aquatic with the body which has rolling Up power. they can be collected from the water with emergent vegetation .they are also found walking on algae, mat

during January to March ,when algae on water, there are rather common in all three types of water.

***Amphiops pedestris* (sharp)**

DIAGNOSTIC CHARACTERS:

strongly convex, somewhat rounded punctate head – reddish brown, transverse, purful puncturation moderately dense mixed with small and a few large punctures and eye divided by a conspicuous and complete canthus reaching the vertex , Antennae 8 segmented. Prothorax – reddish brown, with lateral margins rather short and rounded. Puncturation moderately dense and with a few large irregular, sparsely distributed, punctures. Scutellum- long, triangular and punctuate. Elytra-yellowish, brown, shining, with rows of punctures. Interstices mixed with small and large punctures in addition to these rows dark patches present on elytra provided with a large, central setiferous puncture. Legs similar to ***Amphiops mirabilis***. Ventral surface reddish brown. (Plate no.-II)

SIZE: Length = 5.7 mm

GENITALIA:

The genitalia are very short almost trapezoidal, not much conspicuous. Parameres long, slender, narrowed, towards third apices curved in the middle at least twice as well as those of ***Amphiops mirabilis*** apices bluntly rounded. Aedeagus. Conical narrowed towards apex with a bulbous apical process.

DISTRIBUTION: Haridwar (garhwal region).

MATERIAL EXAMINED:

2 Male Haridwar (Garhwal region). 24. Vill. 1992. Coll. Saroj. S.K

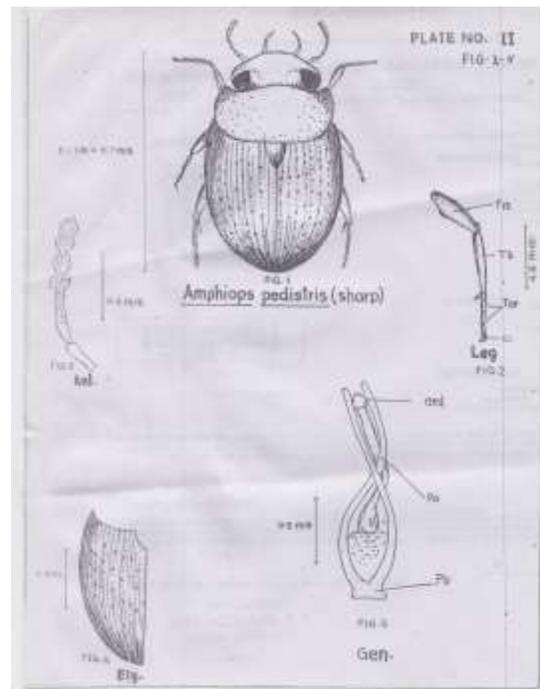
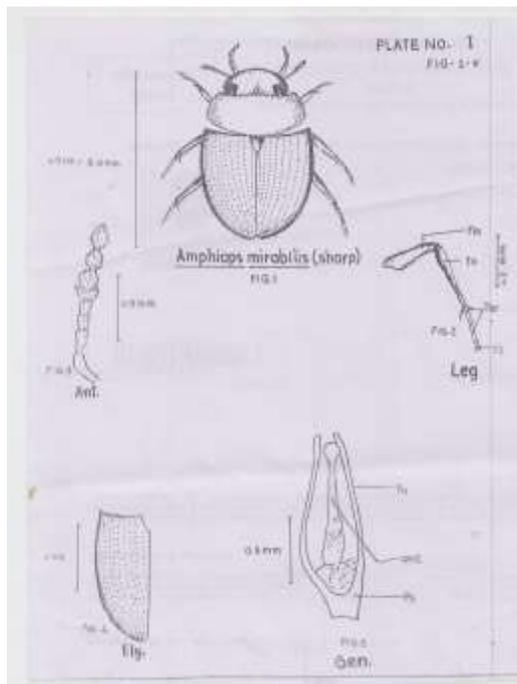
Remarks: These beetles habitat is similar to that of ***Amphiops mirabilis*** but unlike, ***Amphiops mirabilis*** they are smaller in size and rather scarce in water land and represented only in fresh water.

DISCUSSION

The present account deals with two species belonging to one genera collected from various states and districts of Kumaon, Garhwal (UK) and Agra region (UP). These Beetles are widely distributed through-out the state. 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 color marking, wings

venation, number of segments 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 character on which the correct key for the identification can be made.

Acknowledgement: The author is thankful to Dr. Lalit Mohan, Assistant Professor, Department of Zoology, Dayalbagh Educational Institute (Deemed University), Dayalbagh, Agra for his kind cooperation in preparation of this research paper.



REFERENCES

1. Erichson. (1843). *Amphiops mirabilis*, Archive. Naturg; 9(1):229.
2. Erichson. (1924). *Amphiops mirabilis*, Col, Cat. , 14(79): 259---260.
3. Regimbernt. (1903). *Amphiops mirabilis*, Ann. soc. Ent. fr. 72: 61 .
4. Sharp. (1890). *Amphiops pedestris*, Trans. Ent. soc. London p- 354.
5. Regimbart. (1903). *Amphiops pedestris*, Ann. soc.Ent.Fr. 72: 62.