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TAXONOMICAL CHARACTERISTICS OF GENITALIA OF HYDROPHILID BEETLES COLLECTED FROM HIMALAYAN FOOTHILLS

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Abstract: Taxonomy of the genus *Omicrogiton* and *Psalistrus* from Kumaon & Garhwal regions is described we have discovered *O. insularis* (D. Orchymont 1919) and *P. championi* (Champion 1925) for the first time in Uttrakhand.

Keywords: Aquatic and terrestrial beetles, systematic accounts, taxonomic nomenclature, polyphagus.

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INTRODUCTION

Coleoptera is the largest of the insect Orders, as it has over a quarter of million known species. The sub–family sphaeridinae Hydrophilidae are commonly water scavengers beetles Inhabits these are polyphagus and are found in aquatic and terrestrial forms,

The genus ***Omicrogiton*** (D. Orchymont) and ***Psalitrus*** (Champion) belongs to the tribe-cercyonini and contains 2 species described in the Kumaon and Garhwal region. UK.

Members of the genus mainly are distinguished by the ***Omicrogiton*** and ***Psalitrus*** like a taxonomic features, male and female external genital organs. we provided a key, photographs and diagnostic characters.

MATERIAL AND METHODS:

Morphological and taxonomical terminology used in this study the Specimens were examined by the microscope, binocular and key characters are given by photographs produced with a digital camera system. Materials used for this work were collected by the light traps and hand nets & picked by hand from Kumaon and Garhwal regions.

PRESERVATION:

The collected materials were kept in the para-dicholoro- benzene, sprite and 10% alcohol, Nepthalene tablets. All the chemical substances which are found to be a very good preservatives. After determination the Hydrophilid beetles were pinned and labeled as usually kept in Entomological boxes.

Taxonomy:

Super Family –Hydrophiloidea

Sub-Family: Sphaeridinae

Tribe: Cercioni

Key to sub- family*:* Sphaeridinae and Hydrophilinae.

1(2) Antennae normally longer than maxillary palpi, which are never very long, the last glabrous segment obconic, filled more or less tightly a 1st segment of pubescent club……..**Sphaeridinae.**

2(1) Antennae shortended,as long as and often shorter then maxillary palpi, the last glabrous segments more or less asymmetrical, club like, embracing the 1st segment of pubcescent, always tri-articulate……**Hydrophilinae.**

Key to tribe Cereyonini and Sphaeridiini

1(2) Head abruptly narrowed before the eyes ,the outer margin forming a conspicuous angle with the latter, which are not emerginate, the shorter antennae inserted freely, not under the laminated border of antennal sternite, the insertion quite visible from above.metasternum not prolonged between the middle coxae except in omicrus (American and Hawaiin). Meta-thoracic episterna never very wide……**Cereyonini**.

2(1) Head not narrowed just before the eyes, the outer margin forming no conspiquous angle with the latter, the antennae inserted under a laminated border (antennal sternite) very conspicuous from beneath and concealing the base of antennae from above. This border penetrates sometimes into the eyes, which appear than emerginate. Antennae usually much longer maxillary palps. Metasternum usually prolonged between the middle coxae, closely united with the meso stital elevation. Meta-thoracic episterna wide .posterior tarsi with 1st joint longer than 2nd and 3rd usually very long, exceptionally subequal or scarcely longer than 2nd but than the 1st ventral segment is carinate along the middle-intermediate coxae normally separate. Meta - sternum with sometimes a defined elevated area in the middle or very conspicuously defined femoral abutments……**Spharidiini.**

Key to genera *Omicrogiton* (D.Orchemont, 1925) and *Psalistrus* (D. Orchymont, 1919) from U.K.

1(2) Mesostital lamina cultriform, double. Its anterior part concave in the middle its posterior part alone in touch with metasternal elevation between middle coxae. Posterior tarsi more elongate, their first much longer than second. Elytra explanate as in Paromicrus. Middle coxae Narrowly Separate, antennae 9(6+3) joineted……***Omocrogiton.***

2(1) Mesostital elevation as a wide pentagonal plane, In touch with metasternal process between middle coxae. Tarsi shorter, side margins of elytra not explanate. Middle coxae more widely sepatate, anetennae 8-jointed (5+3) …… ***Psalitrus.***

Omicrogiton insularis **(Orchemont)**

DIAGNOSTIC CHARACTERS:

Smooth, depressed underneath, dull reddish brown, coarse, central part lightly punctured, middle part elevated, the upper surface thickly perforated and elevated. Head-very smooth, well developed, punctate, very delicate, rather, upper lip fairly long, lightly developed, maxillary palps yellowish. Antennae 9 segmented, yellowish. Prothorax-broad, narrowed, anteriorly edges pointed, delicate is a regular punctation, more on the sides, Scutellum-small and U-shaped. Elytra- with very fine dotts, thickly punctured, in series, regular, upper parts of elytra elevated. Legs- thick, pubescence intermediately absolutely punctate, femur broad, tibia long and slender, tarsi 5 segmented, 5^{th} almost equal to 1^{st} longer than others, tibial. Spines prominent (Plate-I).

SIZE: 5.2 mm. in length.

GENITALIA:

Phallobase short, narrowed, separated, stout apex narrowed and rounded parameresstout, gradually narrowed towards their bluntly rounded apices. Aedeagus club shaped with apical process conical and smoothly rounded.

DISTRIBUTION: West Almora, Ranikhet, Bhimtal (Kumaon region.)

MATERIAL EXAMINED: 5 Male W. Almora, Ranikhet, Bhimtal (Kumaon region) UK. 28. III. 1990. Coll. Saroj, S.K.

REMARKS: This species occurs in the cactus and related to the ***Psalitrus championi*** (Orchemont) but differs small semicircular body and rather convex, brownish punctate. This species found in terrestrial and aquatic forms.

Psalitrus championi (Orchymont)

DIAGNOSTIC CHARECTERS: Small semicircular,rather convex, brownish, punctate, slightly traiagngular, distinct, partly elevated Head-small, rounded, brownish, eyes prominent, maxillary palpi long, thickened at the extremity, antennae hairy, 9 segmented, 1^{st} segment long. Prothorax-broad, narrowed, laterally curved, thickly punctured, sutures bitter printed and legs reduced. Scutellum-small and U-shaped punctate. Elytra-broad, rounded, more fine irregularly punctures. Legs simple, thickened, hairy, pubcence femur broad, tibia long, slender, tarsi, hairy, 5 segmented, 5^{th} almost thick than 1^{st}, other equal, claws simple (Plate-II).

SIZE: 4.3 mm .in length.

GENITALIA:

Phallobase broad, conical, parameres short, stout, narrow, apically, apices bluntly rounded, aedeagus broad, stout, rounded, apical process conical.

DISTRIBUTION: Haridwar, Dehradun (Garhwal) U.K.

METERIAL EXMINED: 2 male, Haridwar, Dehradun (Garhwal region) U.K. 24.III.1991.Coll. Saroj, S.K.

REMARKS:

In this species the satural strakes appears to be bitter printed and less occupying about the last quarter of the elytra. This species compared the posterior (hind) angles are marked and sufficient straight through rounded. The meta-sternum is shiny. These coleopterans were confused in the collection of museum with phalacridae.

DISCUSSION

The present account deals with 2 species belonging to 2 genera collected from various districts of Uttarakhand; specially Kumaon Garhwal region. These Beetles are widely distributed through-out the various Districts. The present investigation is mainly based on taxonomy of Hydrophilid beetles with special reference to their genetalia. The previous classifications of these beetles were based on the experimental genital characters like colour marking, wings venation, 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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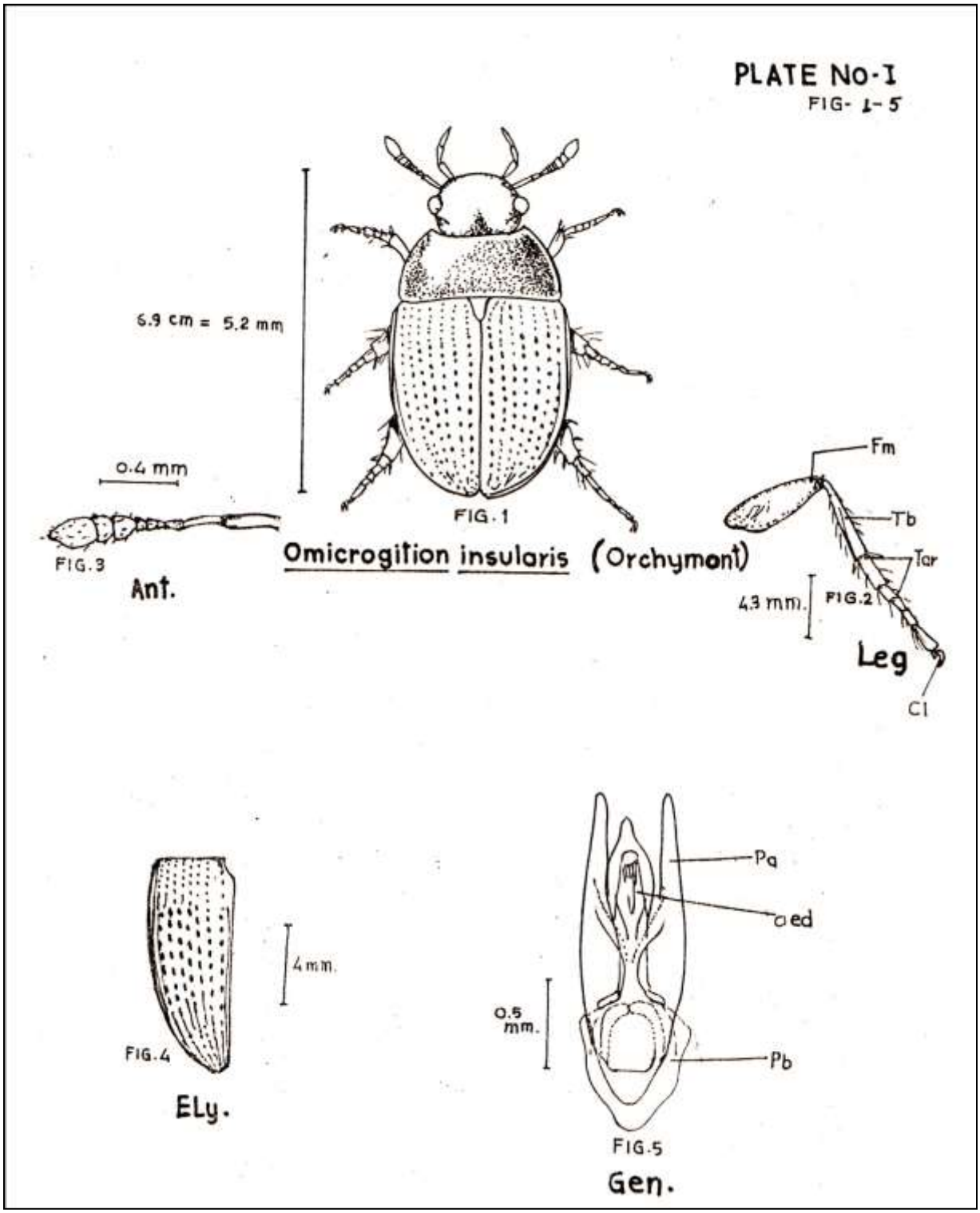
PLATE NO-I
FIG- 1-5
6.9 cm = 5.2 mm
FIG.1
Omicrogilion insularis (Orchymont)
0.4 mm
FIG.3
Ant.
Fm
Tb
Tar
4.3 mm.
FIG.2
Leg
Cl
4 mm.
FIG.4
Ely.
Pa
oed
0.5 mm.
Pb
FIG.5
Gen.

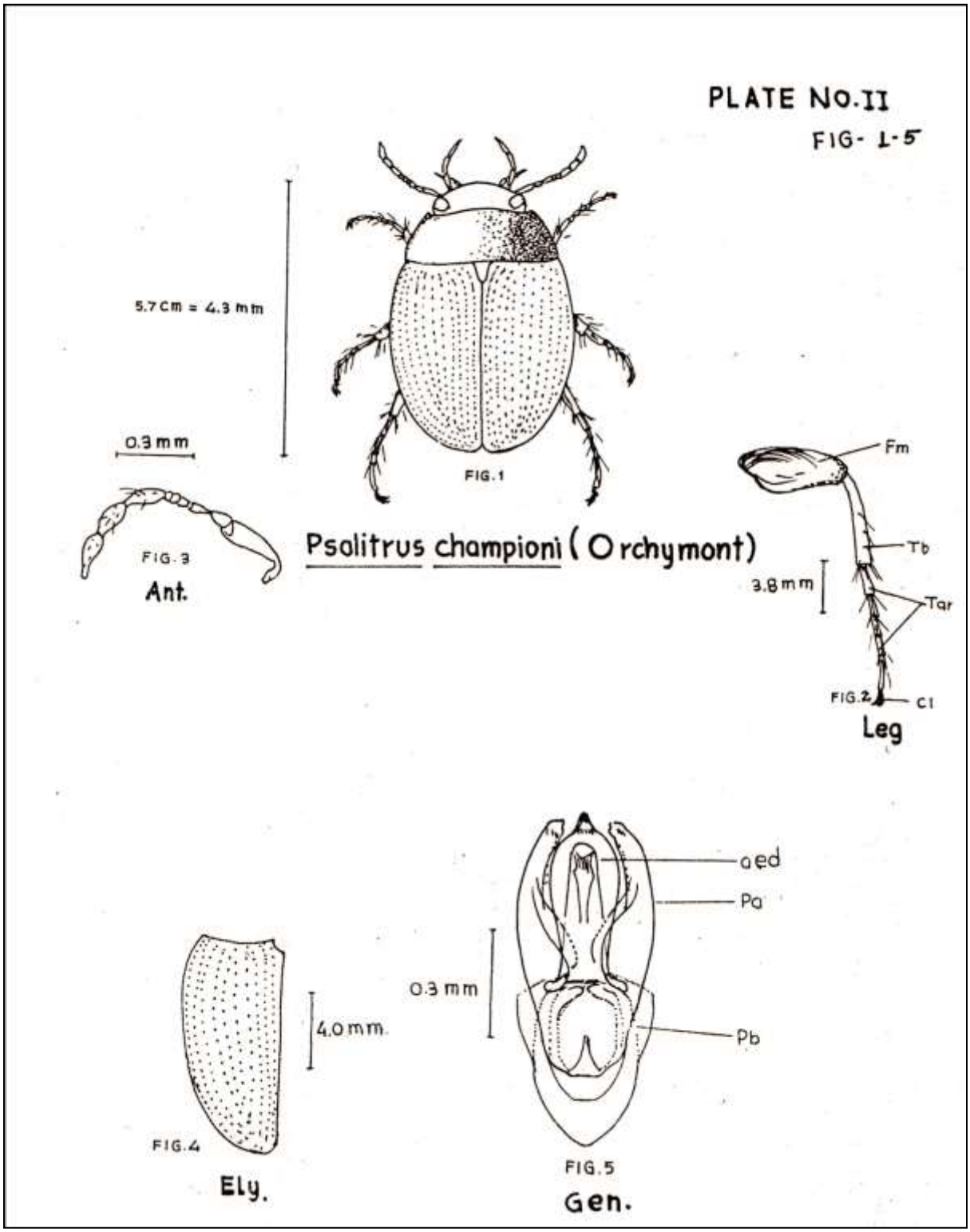
PLATE NO.II
FIG- 1-5
5.7 cm = 4.3 mm
FIG.1
0.3 mm
FIG.3
Ant.
Psalitrus championi (Orchymont)
Fm
Tb
3.8 mm
Tar
FIG.2
Cl
Leg
aed
Pa
0.3 mm
Pb
4.0 mm
FIG.4
Ely.
FIG.5
Gen.

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