

ON THE GENUS *RHIZOPHAGUS* HERBST  
( COLEOPTERA : RHIZOPHAGIDAE )  
AND DESCRIPTION OF A NEW SPECIES  
FROM INDIA

by

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( With 1 Text-figure )

INTRODUCTION

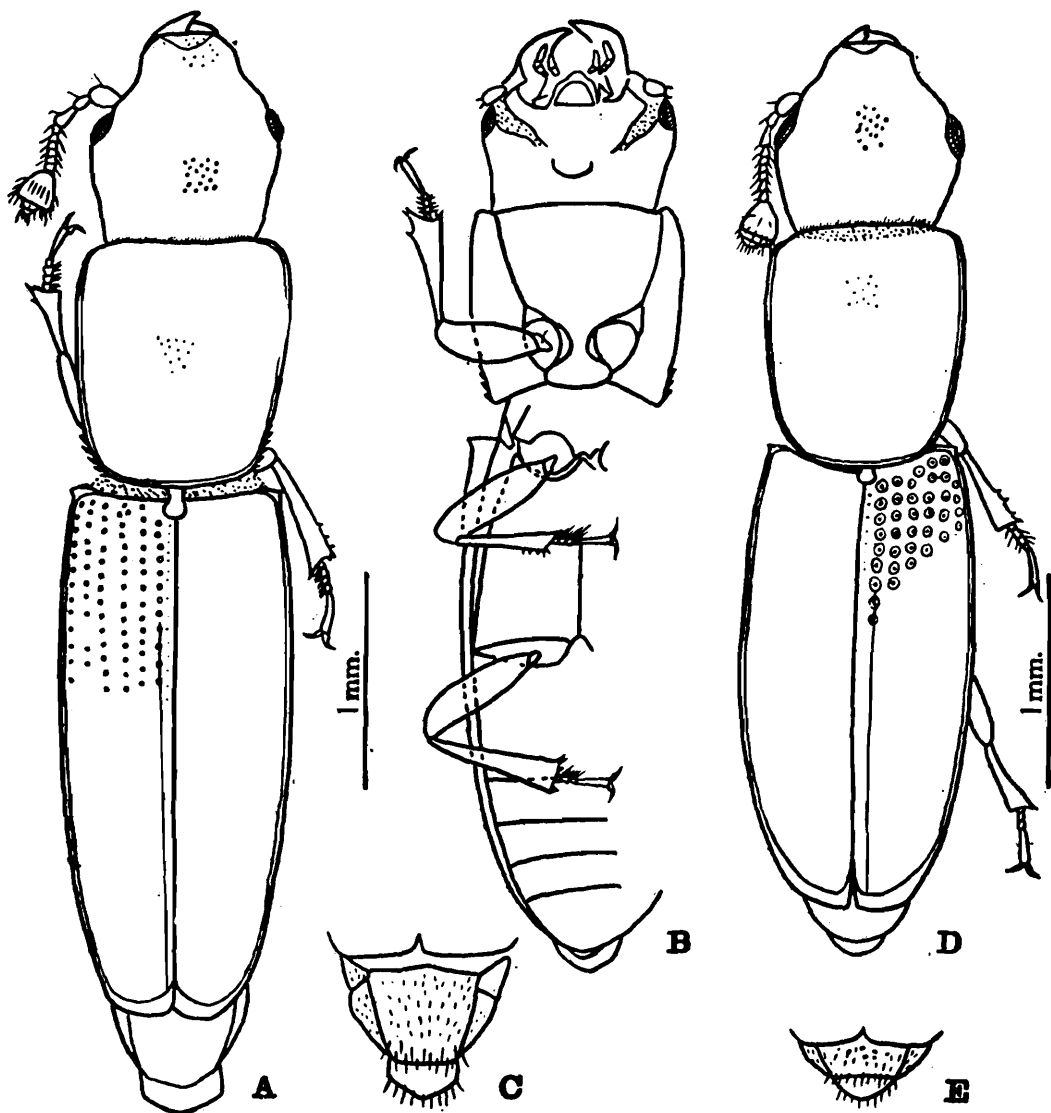
The genus *Rhizophagus* belongs to the family Rhizophagidae : Clavicornia : Cucujoidea : Polyphaga. Crowson (1955) proposed four subfamilies Rhizophaginae, Monotominae, Thioninae and Lenacinae under the family Rhizophagidae. The sub-family Rhizophaginae includes only one genus *Rhizophagus* Herbst, which has been subdivided into four subgenera *Rhizophagus* s. str., *Eurhizophagus* Méquignon, *Anomolophagus* Reitter and *Cyanostolus* Ganglbauer. Johnson (1964) provided a key to the subgenera of *Rhizophagus* in his work "The British species of the genus *Rhizophagus*" Representatives of the genus are commonly found under bark, fungus infested wood and their distribution is restricted to warm temperate zone of the world. Méquignon (1913) described the only species *R. indicus* from Dehra Dun: Uttar Pradesh : India, based on single specimen (♂) under the family Nitidulidae, collected by F. Cladow, and deposited in Indian Museum Registration No. 1881/14. One of us (Sengupta), while working as Pool-Officer (C.S.I.R.), has collected two specimens from Kashmir, which is the second new species recorded from India.

*Rhizophagus* Herbst.—Species ranging from about 2 to 5 mm., elongated more or less parallel-sided, easily recognisable from other related families of Clavicornia by its typical antennal club (Text-fig. 1 A) and from other subfamilies of Rhizophagidae by its almost fully exposed front trochantin, middle coxal cavities distinctly open outwardly, without head constriction behind the eyes.

*Head*.—without stridulatory files and fronto-clypeal suture, antennal insertions hidden, eyes not projected. Antenna 10-jointed with typical club (Text-fig. 1 A). Ventral side often with well developed antennal

cavities (Text-fig. 1 B), without longitudinal lines. Mandible with short apical teeth, mola rather poorly developed; maxillae with well developed galea and lacinia, palpi with apical segment fusiform; labial palpi with apical segment fusiform.

*Thorax*.—Prothorax elongate, pronotum without prebasal impression. Front coxae rather closely situated, cavities transverse, trochantins fully exposed, cavities internally and externally closed behind. Mesocoxae narrowly separated, cavities open outwardly, meso-epimera extending to the coxal cavities, sternal fitting between mesocoxae with a single knob. Metacoxae rather closely situated and transverse. Legs with trochanters simple and short, tibiae widened at apex, tarsi simple, tarsal formula 5-5-4 in male and, 5-5-5 in female.



Text-fig. 1.—A-C *Rhizophagus Pahalgamus* n. sp. A. Dorsal view, B. Ventral view, C. Posterior segments of abdomen; D & E. *Rhizophagus indicus* Meguignon D. Dorsal view, E. posterior segments of abdomen.

**Elytra and Wing.**—Elytra elongated, parallel-sided, truncated at apex exposing last abdominal tergites. Elytral puncturation in regular rows, epipleura complete upto apex. Wing venation reduced, without anal and radial cell.

**Abdomen.**—Elongated, first ventrite markedly long, intercoxal process moderately narrow and pointed at apex, without femoral lines. Tergite 7 markedly long, 6 pairs of spiracles lying on edges of tergites, tergite 7 without spiracles. Aedeagus short uninverted cucujoid-type and without articulated parameres. Ovipositor with separate paraprots, valvifers, coxites and minute style attached to outer faces of coxites-

Larva of *Rhizophagus* is described by Boving and Craighead (1931); head with cucujoid-type frontal suture; ocelli 2 on either side of head; mandible with two apical teeth, mola well developed, prostheca slender and pointed; maxillary mala falciform, maxillary articulating area well developed; labial palpi two-jointed; urogomphi short and characteristically branched; spiracles bicameral; legs rather short, claws simple with two-tarsungular setae lying side by side.

Known Indian species are not metallic in colour as in subgenera *Cyanostolus* and *Anomolophagus*, and second elytral interstice not broad as in subgenus *Eurhizophagus*, therefore placed under the subgenus *Rhizophagus* s. str.

#### ***Rhizophagus pahalgamus* n. sp.**

Over-all length 4.70 mm.; length of antenna 0.80 mm.; width of head across eyes 1.00 mm.; width of Prothorax across front margin 0.80 mm.; width of elytra across middle 1.10 mm.; length of elytra 2.40 mm.

**General Shape.**—(Text-fig. 1 A) narrow, elongated, almost parallel sided, dorsally and ventrally depressed, dorasally glabrous and uniformly blackish brown.

Head (Fig. A) elongated, broadest across eyes and narrowed behind, eyes coarsely faceted, vertex of head more coarsely and slightly densely punctured than pronotum, anterior part of head more finely and sparsely punctured than that of vertex of head, clypeus (Text-fig. 1 A) broad, its apical margin almost straight, anterior part of clypeus with a distinct curved impressed line, labrum not visible. Antenna rather short, 10-jointed, insertions hidden, scape moderately large, pedicel small, about two-third of length of joint 3, joints 4-9 short and equal, club typical (Text-fig. 1 A) *Rhizophagid*-like and densely pubescent. Prothorax slightly longer than wide, widest in front margin and progressively slightly narrowed behind, lateral and hind margin uniformly bordered, front margin with a row of fine setae, front angles obtusely

rounded, hind angles rounded with 5 spines on each side (Text-fig. 1 A), puncturation on pronotum distinct but smaller and slightly sparser than vertex of head. Lateral and basal margins narrowly bordered, front margin with a row of small hairs. Elytra elongated, almost parallel-sided, slightly narrowed posteriorly, lateral margin bordered, humeral angles with calosities (Text-fig. 1 A). 9 rows of distinct punctures extending up to the apex, scutellary striole not distinct but with a row of minute punctures extending up to the apex. First row of punctures near scutellum with a distinct impressed line which extending to posterior three-fourths. Puncturation on elytra distinct slightly larger than that of vertex of head. Scutellum glabrous and its apical margin rounded (Text-fig. 1 A). Last two exposed abdominal segments as figured (Text-fig. 1 C). Leg (Text-fig. 1 B) with trochanter short, simple end with a single distinct seta. Ventral side glabrous with distinct punctures. Front coxal cavities slightly transverse with exposed trochantins and externally distinctly closed behind, prosternal process broad at apex (Text-fig. 1 B), anterior part of prosternal process with distinct undulated transverse ridges.

Holotype (♂) and a Paratype.—India : Kashmir : Pahalgam (7000 ft.) 30.5.1972 (*T. Sengupta*), on fungusy bark of a fallen tree, deposited in the collection of the Zoological Survey of India, Calcutta.

The chief characters in which *Rhizophagus indicus* Méquignon differs from *R. pahalgamus* sp. n. are given below :—

<i>R. indicus</i> ♂ (Text-fig. 1 D & E)	<i>R. pahalgamus</i> ♂ (Text-fig. 1 A-C.)
1. Colour redish brown	1. Colour blackish brown.
2. Hind angles of prothorax smooth (Fig. D.)	2. Hind angles of prothorax with 5 spines (Fig. A)
3. Elytral puncturation as figured (Fig. D)	3. Elytral puncturation different (Fig. A)
4. Exposed part of apex of abdomen of male as figured (Fig. E)	4. Exposed part of apex of abdomen different (Fig. C)
5. Species (Fig. D) comparatively shorter and broader, length 4.10 mm. long and maximum width across middle of elytra 1.10 mm.	5. Species (Fig. A) more elongated and narrower, length 4.70 mm. and width across middle of elytra 1.10 mm.

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## SUMMARY

A new species of *Rhizophagus* Herbst is described from India and the genus *Rhizophagus* is redefined.

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