

**A NEW RHIZOPHAGUS-SPECIES FROM CHINA
(COLEOPTERA, RHIZOPHAGIDAE)**

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In the collection of the genus *Rhizophagus* Herbst in the National Museum Prague, I found a series of a new species, the description of which is given below. This material originates from the firm Reitter and was collected in the province Szechuan, in western China. The new species is compared with its allies from Eastern Asia and a key is given to distinguish it from them. I cordially thank Dr. Zoltán Kaszab from the Department of Zoology, Hungarian National Museum, Budapest, for his kindly lending me the holotype of *Rhizophagus simplex* Reitter for comparison.

***Rhizophagus suturalis*, sp. n.**

Holotype: 1 male, labelled: Tatsienlu Tjiji, Urwald-Rodungen, Szechuan, China, E. Reitter. Deposited in the National Museum of Prague.

Description: Length 4 mm, breadth nearly 1 mm. Head with eyes as broad as anterior border of pronotum, nearly as long as broad together with eyes, temples 1.7 times longer than eyes, converging towards the pronotum. Anterior margin of clypeus straight, with rounded lateral angles, each of those with two setae. Frons with two distinct, broad impressions, beginning closely before the antennal base, converging backward and ending at level of centres of eyes. The area between the impression and eye slightly convex and running out before the eye into a small projection. Antenna is jointed laterally on this projection. Antennal grooves run obliquely from antennal base to the ventral border of eyes and end at the ventral surface of the head behind eyes. Vertex before the anterior border of pronotum very slightly transversely impressed, this impression is a little more distinct laterally, behind the eyes only. Eyes not large, nearly triangular with rounded angles, situated laterally, slightly convex, light. Antennae nearly as long as the breadth of head with eyes together. First antennal segment 1.6 times as long as broad, broadest at apex, twice as long as, and nearly 1.7 times as broad as, the second one. The second segment 1.3 times, third one twice as long as broad, the third segment as long as two following ones together, the fourth to eighth segments subequal, as long as broad, the ninth somewhat broader, distinctly transverse, the tenth segment nearly as long as broad at the apex, 2.2 times as broad as the ninth one, at the distal margin with

a ringlet of pale and very short hairs. The eleventh segment conical, half the length of the tenth, with a ringlet of hairs in the middle of length and with a cluster of such hairs at the apex. In the middle of length of each segment there are several longer setae, reaching to the distal end of the following segment. Punctures on head very fine and sparse, towards the vertex becoming closer and deeper, before the anterior margin of pronotum dot-like and close, in the longitudinal direction separated by three fourths a diameter. The ventral surface with well marked convergent antennal grooves, ending behind the eyes. Submentum slightly transverse, transversely broadly impressed, all over beset with coarse and close punctures.

Anterior margin of pronotum almost as broad as head with eyes together. Pronotum broadest just at its anterior border, 1.4 times as long as its maximal breadth, anteriorly imperceptibly, towards the base distinctly narrowed, lateral margins almost straight, convergent towards the base. Anterior angles subrectangular, somewhat rounded, posterior ones broadly rounded. The pronotal upper surface almost flat on disc, slight, but distinctly impressed posteriorly, laterally towards the margins strongly arched. This convexity of lateral parts reaches closely to the lateral margins. Basal and lateral margins of pronotum are bordered by a fine line, less distinct in the middle of base and, anteriorly, continuing a short distance round the anterior angles of pronotum. Pronotal border set off by that line is very fine and as broad as the grooved line, except for the base of pronotum, where it is a little broader. Punctures of the pronotal surface deep, equal in size to those of vertex, but much sparser, separated by one to more than one diameter.

Scutellum small, almost semicircular.

Elytra at base a little wider than the anterior margin of pronotum, 2.75 times as long as wide at base, widest before the middle; towards the base they are imperceptibly, towards the apex distinctly, but not strongly narrowed, each of them rounded at the apex, but reaching their maximal length close to the sutura. Shoulders anteriorly slightly prominent. The upper surface of elytra transversely very feebly vaulted in the middle, but laterally so strongly convex that the lateral elytral margins are not visible from above. The rows of elytral punctures regular, punctures in the same row separated by nearly one diameter, from those of adjacent rows in basal part of elytra by two diameters. Interstices narrowed towards the apex. Punctures in more lateral rows and towards the apex gradually finer. The largest elytral punctures—in basal part of first five lines—nearly equal to those of pronotum. First row with somewhat slighter punctures than the second and the third, distinctly furrowed in basal part and also in apical half, at apex turned along the elytral margin sideways and forwards into the lateral groove of the elytra. This groove deeper towards the base of the elytron and ending before the shoulder. Interstices flat, the first one with a row of very fine, poorly distinct punctures; their distance from each other is twice as long as distance from the punctures of the first regular row. All the upper surface slightly shining, with very fine and close microscopical reticulation.

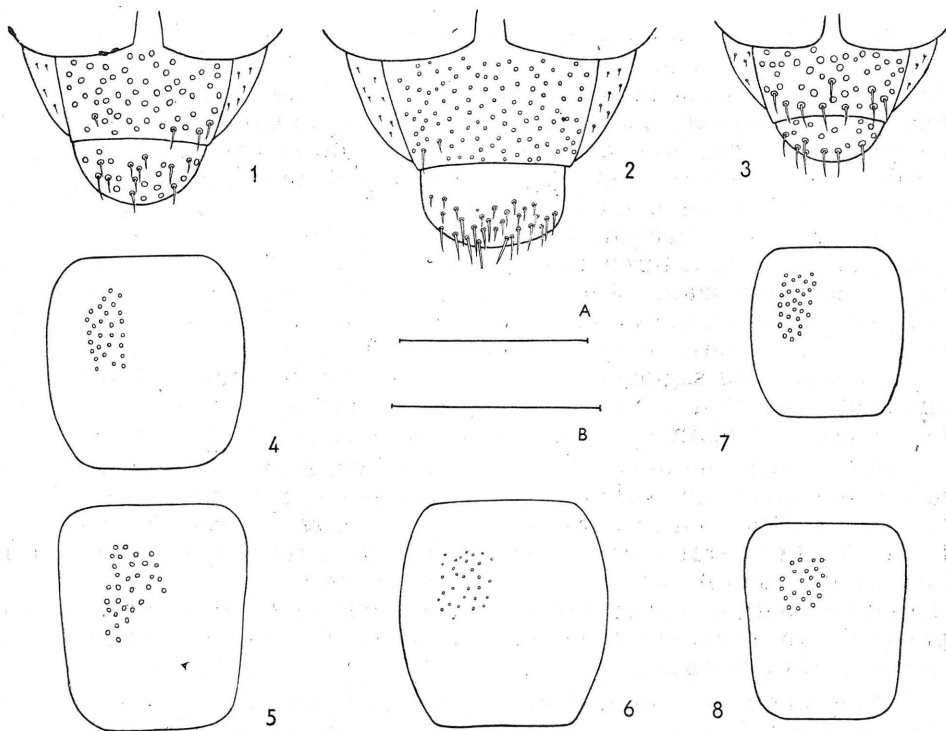


Fig. 1: *Rhizophagus suturalis*, n. sp., male pygidium. — Fig. 2: *Rhizophagus simplex* Reitt., dtto. — Fig. 3: *Rhizophagus japonicus* Reitt., dtto. — Fig. 4: *Rhizophagus suturalis*, sp. n., female pronotum with example of punctures. — Fig. 5: *Rhizophagus suturalis*, sp. n., male pronotum. — Fig. 6: *Rhizophagus simplex* Reitt., male pronotum. — Fig. 7: *Rhizophagus japonicus* Reitt., female pronotum. — Fig. 8: *Rhizophagus japonicus* Reitt., male pronotum. Scale A = 0.5 mm [Figs. 1.—3.], scale B = 1 mm [Figs. 4.—8.].

Prosternum transversely convex, dull, with sparse punctures, three transverse wrinkles before the prosternal projection, slightly transversely impressed before the wrinkles. Prosternal projection strongly dilated behind the procoxae, bordered by distinct lines laterally, between them slightly transversely convex and flatly rounded at apex.

Mesosernum, metasternum and abdominal sternites slightly shining, with fine and sparse puncturation, only in lateral regions with strong, deep punctures, separated by one or more than one diameter. The whole of the ventral surface very finely and closely reticulate. Mesosternum wider than long, transversely convex. Metasternum in the middle of the distal half with longitudinal, sharp, slightly impressed groove, reaching to the distal metasternal margin, on each side of the groove slightly convex. The first abdominal sternite as long as three following ones together, along the middle distinctly flattened. The last sternite broadly rounded at the apex. Pygidium with close strong punctures, separated by less than one diameter. The additional male segment is developed.

Anterior and median femora broadest in the middle, oval, three times as long as broad. Posterior femora somewhat longer, nearly four times as long as wide, widest in the distal half. Inner side of distal end of all femora with two very short, sharp edges, between which tibia is jointed. Tibiae thin, at apex broadest, apical margin with several thorns. Anterior tibiae with tooth-like outer distal angle only slightly developed. Middle tibiae apart from the distal outer tooth with one, somewhat shorter, thorn in the last fifth of length of the outer edge. Anterior and middle tarsi five-segmented, first three segments simple, nearly as long as wide, the fourth segment small, fifth somewhat longer than the four preceding segments together, claws simple. Lower surface of the first three tarsal segments with dense, long, whitish pubescence. Posterior tarsi four-segmented, the third segment somewhat narrower than the two preceding ones, but larger than the fourth segment of anterior and median tarsi. The fourth segment distinctly longer than the three preceding ones together.

Head and pronotum pitchy blackish brown, frontal part of head, anterior and posterior border of pronotum paler, reddish brown. Elytra testaceous, with a dark coloration along the suture, this reaching laterally to the fourth elytral row and ending nearly in three fourths of elytral length; also lateral parts of elytra between the seventh elytral row and the lateral margin, and scutellum pitchy blackish brown. Ventral surface pitchy brown, head and pygidium somewhat paler, more reddish. Antennae and legs testaceous.

Female: In general similar to the male. Head comparatively smaller, together with eyes slightly narrower than the anterior margin of pronotum. Pronotum 1.1 times longer than broad, laterally distinctly arcuate, widest in the middle, more strongly narrowed towards the base than towards the anterior margin. Additional tergite absent. Posterior tarsi five-segmented.

Variation: The degree of distinctness of the transverse impression behind the eyes varies. It is often almost indistinct, but in some cases it is quite distinct. Also the shallow impression at the basal half of pronotum before the scutellum is sometimes indistinct, in such cases this part of pronotal surface is depressed. Pronotal punctures often irregular, especially in the middle of the pronotal surface, where there may be spaces without punctures. Colouring, especially breadth and distinctness of the dark sutural and lateral bands on the elytra is variable. Colour of head varies from comparatively pale reddish brown colour to as dark as the pronotum, with paler clypeal part only. Length varies from 4.0 to 4.5 mm in males; two known females are 4.0 and 4.1 mm long.

The name derivation: The specific name *suturalis* is taken from the characteristic dark coloured sutural part of elytra.

Material examined: Holotypus (male), allotypus (female) and eight paratypes (seven males, one female): Western China, prov. Szechuan, Tatsienlu Tjiji, E. Reitter; collected in clearings of a primeval forest. All material deposited in the collection of the Department of Entomology, National Museum, Prague.

Comparative notes: *R. suturalis*, sp. n. is closely related to *R. japonicus* Reitter and *R. simplex* Reitter, especially to the first of them. It may be separated from them as follows:

- 1 [2] Pronotum of male arcuate laterally, broadest in the middle and narrowed towards the anterior margin almost in the same way as towards the base (Fig. 6). Punctures of the pygidial tergite fine and sparse (Fig. 2.). (Japan, Caucasus, France, England) ***R. simplex*** Reitter.
- 2 [1] Pronotum of male widest at the anterior margin, distinctly narrowed towards the base, lateral margins almost straight (Figs. 5. and 8.). If lateral margins of pronotum are arcuate (females (Figs. 4. and 7.)), punctures of the pygidial upper surface stronger and closer (Figs. 1. and 3.).
- 3 [4] Body more convex transversely, smaller. Outer edge of median tibia with two thorns. Black, anterior and basal border of pronotum, two large humeral and two smaller apical elytral spots red. Japan, Eastern Siberia (patr. n.!) ***R. japonicus*** Reitter
- 4 [3] Body very feebly convex, somewhat longer. Outer edge of median tibiae with only one thorn. Testaceous, pronotum, lateral borders and longitudinal sutural part of elytra pitchy blackish brown. Western China ***R. suturalis***, sp. n.

R. simplex Reitter: I have examined only the holotype (male) of this species, from Japan, which was kindly lent to me by Dr. Z. Kaszab. Therefore I do not know the female characters and the sexual differences of this species. But it is quite distinct from the following species, as well as from *R. suturalis*, described here.

R. japonicus Reitter: This species has been known so far only from Japan. There are in the collection of the Department of Entomology, Mus. Nat. Prague two specimens from Eastern Siberia: one female, Vladivostok, Jureček coll. 1919 and one female, Southern Ussuri, Jureček coll. 1919.