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Oncerochara bolitocharoides gen. et sp. nov., of the tribe Homalotini (Coleoptera: Staphylinidae: Aleocharinae) from Japan

TAKUTO HASHIZUME[1] & MUNETOSHI MARUYAMA[2]
[1]*Entomological Laboratory, Graduate School of Bioresource and Bioenvironmental Sciences, Kyushu University, Fukuoka, 819-0395 Japan*
0214sakana@gmail.com; https://orcid.org/0000-0002-4910-1836
[2]*The Kyushu University Museum, Fukuoka, 812-8581 Japan*
dendrolasius@gmail.com; https://orcid.org/0000-0003-4531-1008

Abstract

A highly distinctive member of the tribe Homalotini (Coleoptera: Staphylinidae: Aleocharinae) is described from Honshu, Japan, as a new genus and species, *Oncerochara bolitocharoides* Hashizume & Maruyama, **gen. et sp. nov.** This taxon is similar to the members of the genus *Bolitochara* Mannerheim, 1830, but can be clearly distinguished by a broad maxillary galea and clearly transverse pronotum. In particular, the shape of the galea is highly distinctive within the subtribe and may indicate a specialized adaptation for feeding. The species is known from only two specimens. This discovery highlights the hidden diversity of Japanese Aleocharinae and underscores the importance of investigating overlooked ecological niches to fully understand aleocharine biodiversity.

Key words: Bolitocharina, East Asia, rove beetle, taxonomy, rare species

Introduction

Worldwide, the subtribe Bolitocharina within the aleocharine tribe Homalotini comprises 682 species (excluding fossil species) in 40 genera (Newton, 2025; Assing, 2021; Hashizume *et al*., 2023). In Japan, 29 species and one subspecies belonging to seven genera have been recognized (Shibata *et al*., 2013; Hashizume *et al*., 2023). However, the actual diversity of Japanese Bolitocharina is underestimated, as many undescribed taxa remain undiscovered in various microhabitats (Hashizume, unpublished data). This suggests that the region harbors a significant yet unexplored component of the global biodiversity of this subtribe. Continuous taxonomic studies are therefore essential to fully document the Japanese fauna and clarify the phylogenetic relationships of Bolitocharina in East Asia.

According to Ashe (1992), Bolitocharina can be recognized by the following character states: tarsal formula 4-4-5; labial palpi with 3 palpomeres, non-styliform; mandibles with large patch of densely arranged denticles in molar area of ventral side; ligula of labium elongate and bifid at apex; medial setae of prementum either one laterally behind the other or one directly behind the other; medial pseudopore field of prementum very narrow and without pseudopores; lacinia of maxilla with numerous spines and setae on apical 0.75 of inner face; many with mesocoxae moderately broadly separated by broad meso- and metaventrite processes; and many with male secondary sexual characters consisting of medial or lateral carinae or knobs on tergites VII and VIII, and broadly emarginate margin of tergite VIII with 3 or 5 small to moderate-sized denticles in each half of emargination. However, some genera (e.g., *Heterota* Mulsant & Rey, 1873, *Leptusa* Kraatz, 1856) currently treated as members of Bolitocharina in recent catalogs (e.g., Newton, 2025) do not share some of the diagnostic characters mentioned above.

We examined specimens of a species that resembles *Bolitochara* Mannerheim, 1830, in appearance, collected from Honshu, Japan. We determined that a new genus should be established for this species as the mouthparts, which are often used for diagnostic characters in the taxonomy of aleocharines, are distinctly different from those of similar taxa.

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Materials and methods

The holotype and paratype of the new species described in this paper are deposited in the Kyushu University Museum, Fukuoka, Japan (KUM).

The morphological observations were conducted using Olympus SZX10 and Nikon ECLIPSE Ci-L microscopes. For the habitus image, photo was taken using a Sony α 7R IV digital camera with a Canon MP-E65 mm 1–5×macro lens and then combined by the Zerene Stacker 3.2.0 software (Zerene System LLC, USA). The aedeagus was photographed with a Canon EOS kiss X5 digital camera attached to an Olympus BX50 microscope. Line drawings were made using a Nikon ECLIPSE Ci-L microscope fitted with a Nikon Y-IDT drawing tube and the Clip Studio Paint Pro 1.04 software (Celsys, Inc., Tokyo, Japan). Figures were edited using the GIMP 2.8.22 software. Dissected body parts were soaked in a 10% KOH solution and then heated in a hot water bath until the muscles and other soft tissues were dissolved. Later, they were embedded in Euparal as permanent specimens on glass plates, following the procedure of Maruyama (2004).

The side of the median lobe of the aedeagus containing the medial foramen is referred to as the ventral side; the opposite side is referred to as the dorsal side.

The label data of the holotype is quoted verbatim, with the text in double quotation marks (“ ”); slash (/) was used to separate lines on the same label.

The following abbreviations were used for measurements: BL—length of body from anterior margin of clypeus to posterior margin of tergite VII; FBL—length of forebody from anterior margin of clypeus to posterior margin of elytral suture; HL—length of head from anterior margin of clypeus to posterior margin of vertex; HW—maximum width of head, including eyes; PL—maximum length of pronotum; PW—maximum width of pronotum; EL—length of elytra, from humeral angle to posterolateral angle; EW—maximum width of elytra. All measurements are in millimeters and are reported in the format “minimum–maximum”.

Taxonomy

Tribe Homalotini Heer, 1839

Subtribe Bolitocharina Thomson, 1859

Genus *Oncerochara* Hashizume & Maruyama, gen. nov.

[Japanese name: Futo-munekubo-hanekakushi-zoku]

Type species. *Oncerochara bolitocharoides* Hashizume & Maruyama, **sp. nov.**

Etymology. The generic name *Oncerochara* is a combination of “ὀγκηρός” (onkērós), the ancient Greek word meaning “swollen”, referring to the broad maxillary galea, and the termination “-chara” (originally from the ancient Greek word “χάρις” (charis) meaning “grace, kindness”) frequently used in generic names within Aleocharinae. The gender is feminine.

Diagnosis. *Oncerochara* can be distinguished from other bolitocharine genera by the combination of the following character states: body elongate, more or less parallel-sided; maxillary galea very broad, about two times as broad as maxillary lacinia, apical part covered with numerous rows of minute setae; ligula of labium apically divided; two medial setae of prementum arranged transversely; medial pseudopore field narrow without pseudopores; hypomeron visible in lateral view; mesoventral medial longitudinal carina extending to apex of mesoventral process; apex of mesoventral process rounded; isthmus present; male sternite VI without medial lobate projection on posterior margin. This genus is more or less similar in general appearance, and in the morphology of the labrum, and the paramere and median lobe of the aedeagus, to the nine genera treated in the subtribe Bolitocharina by Ashe (1992). Among these nine genera, it shares with *Phymatura* Sahlberg, 1876, *Silusida* Casey, 1906, *Stictalia* Casey, 1906, *Neotobia* Ashe, 1992, and *Austrasilida* Ashe, 1992 the character states of the male sternite VI without a small medial lobe and the male sternite VIII with an asetose posterior margin. However, *Stictalia*, *Phymatura*, *Silusida*, and *Neotobia* differ in having a slender maxillary galea; a narrow, parallel-sided, apically divided ligula; and medially arranged premental setae, whereas *Austrasilida* differs in having a slender maxillary galea; a deeply divided ligula; and a male tergite VIII with an asetose posterior margin only at the middle portion. Among the genera occurring

in Japan, *Bolitochara* is superficially similar to this genus, but differs in having the mouthparts similar to those of *Phymatura* and related genera; the male sternite VI with a small medial lobe; and the male sternite VIII lacking an asetose posterior margin.

Description. Body (Fig. 1) somewhat stout; forebody with short setae.

Head almost circular; eyes moderately large; infraorbital carina complete; occipital carina complete; setae directed anteriorly. Antennae with 11 antennomeres, incrassate.

Mandibular molar region with denticles. Labrum (Fig. 2A) transverse, with more than a dozen pairs of macrosetae; epipharynx (Fig. 2A) with developed α-sensilla, β-sensilla located next to each other, γ-sensilla small. Maxillary lacinia (Fig. 2D) with strong setae at apical half of adoral margin; galea (Fig. 2D) extending beyond apex of lacinia, twice as broad as lacinia, with numerous minute trichae adorning distal lobe; palpus (Fig. 2D) with four palpomeres; palpomere 1 small; palpomere 2 widest around apical 1/3, approximately three times longer than wide; palpomere 3 widest round apical 1/3, approximately three times longer than wide, longer than palpomere 2; palpomere 4 shorter than half of length of 3. Mentum (Fig. 2B) trapezoidal, covered with pseudopores except lateral area; anterior margin moderately arcuate emarginate. Labial palpus (Fig. 2C) with three palpomeres; palpomeres 1 and 2 fused laterally; palpomere 1 approximately twice longer than wide; palpomere 2 shorter than 1; palpomere 3 slender, longer than 2; ligula (Fig. 2C) bifid, with a pair of short setae on dorsal side; prementum (Fig. 2C) strongly transverse, with a pair of setal pores, two pairs of real pores, and several pseudopores; medial setae long, arranged transversely (one beside the other), bases moderately separated; medial pseudopore field narrow, without pseudopores; paraglossa with long thin setae at apical half.

Thorax. Pronotum slightly transverse, nearly hexagonal; posterior half almost parallel-sided; setae of midline of pronotum directed anteriorly in anterior half and posteriorly in posterior half; setae of lateral area directed laterally. Hypomeron visible in lateral view. Mesoventrite with medial longitudinal carina extending to apex of mesoventral process mesocoxal cavities separated by intercoxal processes; mesoventral process twice as long as metaventral process, apex of mesoventral process rounded; metaventral process broad, broadly rounded apically; isthmus narrow. Legs slender; tarsal formula 4-4-5.

Abdomen. Abdomen slightly narrowed posteriad; tergite III–V with deep basal impressions; basal impression of tergite VI shallow.

Male. Tergite VII with longitudinal tubercle postero-medially; posterior margin of tergite VIII emarginate, with some small denticles; sternite IV without small medial lobe on posterior margin; sternite VIII margin triangularly produced and asetose.

Female. Unknown.

Distribution. Japan.

Remarks. Several dozen genera of the tribe Homalotini remain unassigned to any subtribe. On the basis of the original descriptions and our examination of the type specimens, this genus can be distinguished from all of them.

Oncerochara bolitocharoides Hashizume & Maruyama, sp. nov.

(Figs. 1–3)

[Japanese name: Futo-munekubo-hanekakushi]

Type material. Holotype: male, (KUM), JAPAN: Honshu: "富山県富山市有峰湖付近 [Toyama-ken, Toyama-shi, near Arimine-ko] / [JAPAN] Toyama-ken / Toyama-shi, nr. Arimine-ko, / 11–12.VI.2022, / S. Imada & S. Yasukawa". **Paratype. JAPAN**: **Honshu**: 1 male, Tochigi-ken, Torobe, 24 VI 1984, M. Tao leg. (KUM).

Type locality. Japan, Honshu, Toyama-ken, Toyama-shi, near Arimine-ko.

Diagnosis. Same as genus; *vide supra*.

Description. BL ≈ 3.38–3.43; FBL, 1.56–1.70. Body (Fig. 1) blackish brown; anterior and posterior margins of elytra, abdominal segment III–V, antennae, and basal and apical part of tibiae reddish brown; tarsi yellowish brown. Dorsal surface of forebody covered with short setae.

Head almost circular; HW/HL: 1.15–1.18; HL, 0.44–0.47; HW, 0.52–0.54; eyes slightly prominent; surface densely punctured, with distinct microsculpture. Antennae slender; length 0.99; relative length of antennomeres 1–11 (n = 1): 24.4 : 19.4 : 17.7 : 11.5 : 10.8 : 11.6 : 10.0 : 10.7 : 11.8 : 12.3 : 29.5; antennomeres 1–4 and 11 longer than wide; 5–6 as long as wide; 7–10 wider than long (Ratio of length/width of antennomeres 1–11 (n = 1): 2.56, 2.26, 2.04, 1.18, 0.82, 0.79, 0.66, 0.70, 0.73, 0.72, 1.81).

FIGURE 1. Holotype habitus of *Oncerochara bolitocharoides* **sp. nov.** Scale bar: 1.0 mm.

Thorax. Pronotum somewhat hexagonal, widest around middle, transverse (PW/PL: 1.23–1.27), wider than head (PW/HW: 1.25–1.32); PL, 0.53–0.57; PW, 0.65–0.72; punctures slightly coarser than those of head; microsculpture slightly weaker than head. Elytra transverse (EW/EL: 1.42–1.52), longer than pronotum (EL/PL: 1.12–1.17), wider than pronotum (EW/PW: 1.31–1.40); EL, 0.59–0.66; EW, 0.90–0.94; posterior margins weakly emarginate laterally; surface coarsely punctured, weakly microsculptured.

Abdomen subparallel, slightly narrower than elytra; basal impressions of tergite III–V with large punctures; remainder of tergal surfaces with finer punctures; microsculpture isodiametric to transverse on tergite III–VI, almost isodiametric on tergite VII, more distinct on posterior segments.

Male. Tergite VII with longitudinal tubercle postero-medially. Posterior margin of tergite VIII (Fig. 3A) moderately emarginate, with some denticles. Paramere (Fig. 3B) of aedeagus slender. Median lobe (Fig. 3C) of aedeagus with relatively small basal bulb; apical process long, thin, curved, and slightly dilated apically; platelike sclerite of inner sac large, nearly oval; flagellum long.

Female. Unknown.

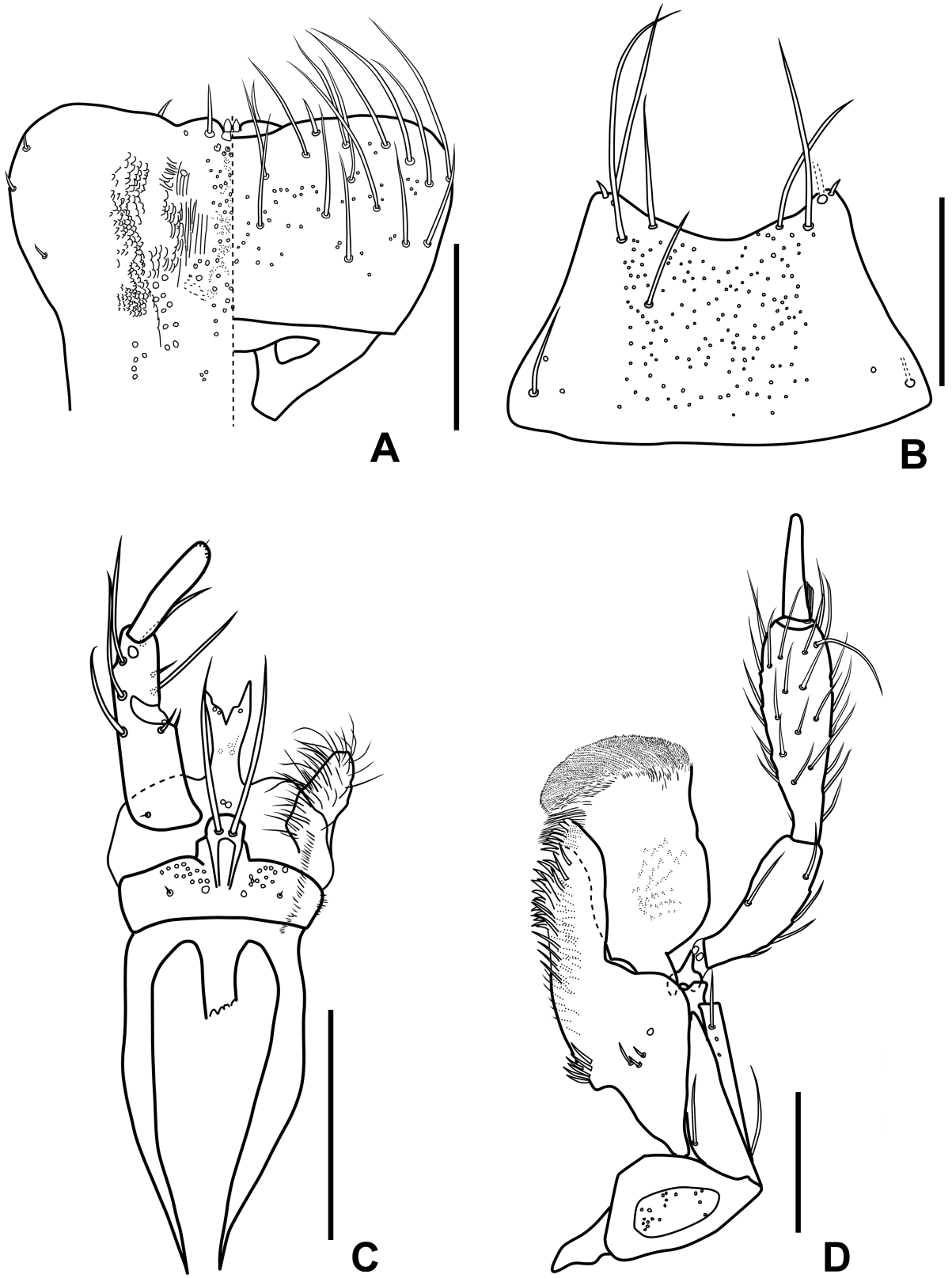

FIGURE 2. Mouthparts of *Oncerochara bolitocharoides* **sp. nov.** A, labrum (right: dorsal view; left: epipharynx); B, mentum; C, labium; D, maxilla. Scale bars: 0.1 mm.

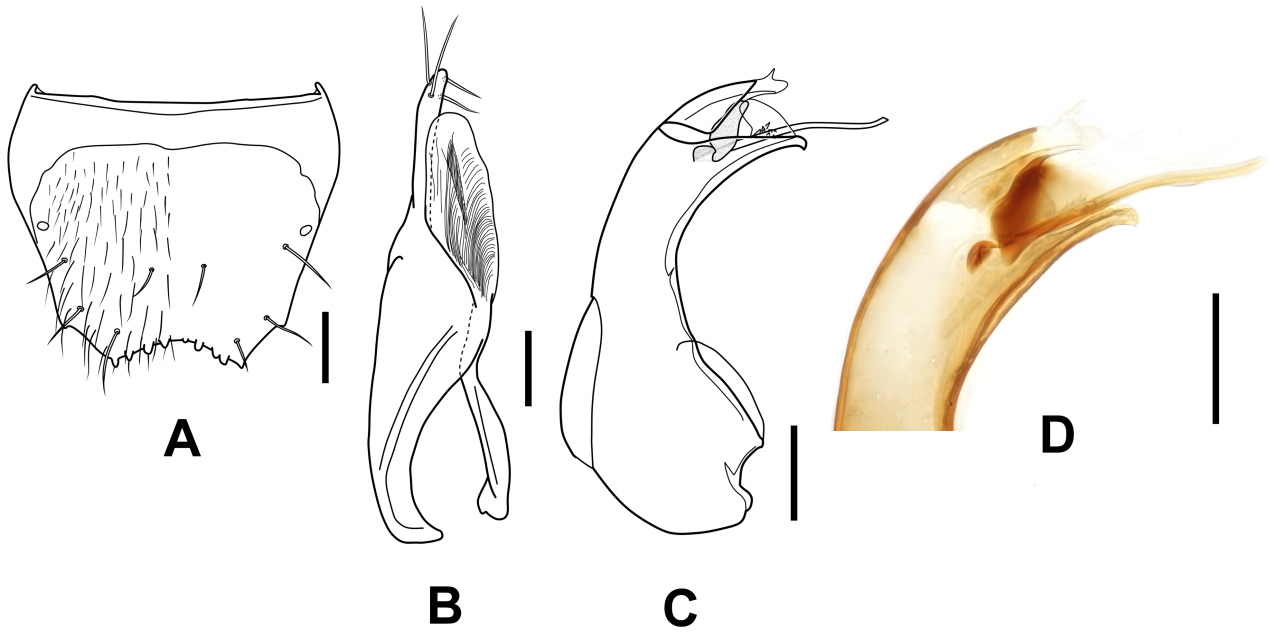

FIGURE 3. *Oncerochara bolitocharoides* **sp. nov.** A, male tergite VIII; B, right paramere of aedeagus, outer view; C, median lobe of aedeagus in lateral view; D, ditto, apical part in lateral view. Scale bars: 0.1 mm.

Distribution. Japan (Honshu).

Etymology. This specific epithet is derived from the genus "*Bolitochara*" and the suffix "*-oides*," which indicates that the habitus of new species resembles some species of *Bolitochara*.

Discussion

The characteristics of the ligula and medial setae of the prementum of the genus *Oncerochara* are not consistent with Ashe's (1992) diagnosis of the subtribe Bolitocharina. However, because most of the characteristics of this genus closely resemble those of *Bolitochara*, *Stictalia*, and related genera—including the general appearance of the labrum; the epipharynx with developed α-sensilla and β-sensilla arranged adjacent to each other; the slightly transverse mentum with a weakly emarginate anterior margin; the mesocoxal cavities separated by intercoxal processes; the posterior margin of the male tergite VIII bearing denticles; the aedeagal paramere with a slender, elongate apical lobe bearing two long outer and two short inner setae; and the aedeagal median lobe with a small compressor plate—the genus is herein placed within Bolitocharina.

Oncerochara has a remarkably broad maxillary galea, a character state unique within Bolitocharina. The broad maxillary galea of this genus is considered apomorphic within Bolitocharina, as all other genera possess a slender galea.

This finding underscores the importance of carefully examining morphologically similar taxa, as superficially familiar species may conceal hidden diversity that warrants taxonomic reevaluation. It also highlights the richness of Japanese Aleocharinae biodiversity, demonstrating that even well-studied regions can yield undescribed taxa with distinctive morphological traits.

Japan has a large community of collectors and researchers specializing in Staphylinidae, and we have examined tens of thousands of Aleocharinae specimens collected by them (e.g. collections of Shun-Ichiro Naomi, Shûhei Nomura, Yasutoshi Shibata, and Yasuaki Watanabe). Nevertheless, only two specimens of *Oncerochara bolitocharoides* were found, underscoring the species' extreme rarity. Given the vast number of aleocharine specimens already available, it is reasonable to assume that *O. bolitocharoides* is, at present, an exceptionally rare species.

Aleocharinae exhibit remarkable ecological diversity (Orlov *et al*., 2021), and their mouthpart morphology can reflect adaptations to specific feeding habits. In some taxa, such as Gyrophaenina, mouthpart structures show a clear association with feeding habits (Ashe, 1993), and in Himalusini, they have undergone extreme specialization

for plants (Klimaszewski *et al*., 2010). The unique shape of the galea in *O. bolitocharoides* likely serves a specific functional role related to a specialized diet. This specialization may explain why the species remains so elusive—its habitat could be exceptionally unique. The broad, densely setose galea, reminiscent of the lacinia in spore-feeding Gyrophaenina, may suggest an association with fungi.

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