



## **The First Discovery of the Genus *Agaricomorpha* Ashe (Coleoptera: Staphylinidae: Aleocharinae) in the Palearctic Region and Description of a New Species in Korea**

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THE FIRST DISCOVERY OF THE GENUS *AGARICOMORPHA* ASHE (COLEOPTERA: STAPHYLINIDAE: ALEOCHARINAE) IN THE PALAEARCTIC REGION AND DESCRIPTION OF A NEW SPECIES IN KOREAYOON-HO KIM AND KEE-JEONG AHN<sup>1</sup>

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## ABSTRACT

A new species of the aleocharine genus *Agaricomorpha* Ashe (Coleoptera: Staphylinidae: Aleocharinae), *A. ashei* **sp. nov.**, in Korea is described. A key to the known species of *Agaricomorpha* is provided. We also present the habitus illustration with line drawings of the diagnostic characters. This represents the third known *Agaricomorpha* species and the first occurrence of the genus in the Palaearctic region.

Key Words: *Agaricomorpha*, Gyrophaenina, key, new species, Palaearctic region

## RESUMEN

Se describe una nueva especie de aleocharine del género *Agaricomorpha* Ashe (Coleoptera: Staphylinidae: Aleocharinae), *A. ashei* **sp. nov.** de Corea. Se presenta una clave de las especies conocidas de *Agaricomorpha*. También presentamos una ilustración del habitus junto con dibujos de los caracteres diagnósticos. Esto representa la tercera especie conocida del género *Agaricomorpha* y el primer registro de este género en la región Paleártica.

Palabras Clave: *Agaricomorpha*, Gyrophaenina, clave, nueva especie, región Paleártica

The genus *Agaricomorpha* (Coleoptera: Staphylinidae: Aleocharinae) was erected by Ashe (1984) to contain the species *Gyrophaena* (*Agaricochara*) *apacheana* Seevers, 1951 from southwestern U.S.A. The species is distinguished from other Gyrophaenina by the following characters: body length of approximately 1.0–1.6 mm, ligula divided in the apical three-fourths, strongly transverse pronotum with distinctly sinuate base, hypomeron not visible in the lateral aspect, and mesoventrite with or without medial longitudinal carina (Ashe 1984). Later, Klimaszewski & Brunke (in Brunke et al. 2012) described a second species, *A. websteri*, from northeastern Canada.

During an ongoing taxonomic study of the Korean Gyrophaenina, we found a small gyrophaenine species. After careful examination of the specimens, we realized that this was the third species of *Agaricomorpha* and the first occurrence of the genus in the Palaearctic region.

In this paper we describe *Agaricomorpha ashei* **sp. nov.** and provide a key to the known species of *Agaricomorpha*. We also provide habitus illustration with line drawings of the diagnostic characters. The holotype and paratypes are deposited in the Chungnam National University Insect Collection (CNUIC), Daejeon, Korea.

## RESULTS

*AGARICOMORPHA ASHEI* KIM AND AHN **SP. NOV.**  
(FIGS. 1–11)

## Description

Body (Fig. 1) length 1.3–1.7 mm. Body slightly flattened, broadest at posterior margin of elytra, abdomen convergent to more or less obtusely pointed; pubescent, macrosetae small, difficult to distinguish from microsetae; brown, head and abdominal tergites III–VI dark brown, antennomeres 1–3 and legs light brown.

Head. Transverse, narrower than pronotum, eyes moderate in size, about as long as tempora; infraorbital carina well developed, complete; neck absent; antennomere 4 subquadrate, 5–10 transverse, slightly incrassate toward.

Mouthparts. Labrum (Fig. 2) transverse, 7 pairs of macrosetae present, sensilla of antero-medial sensory area distinct, shallow and narrowly emarginated,  $\alpha$ -sensillum with short setose process,  $\beta$  and  $\gamma$  minute and conical,  $\epsilon$  with short setose process, almost as long as  $\alpha$ , three lateral sensillae present on lateral margins of epipharynx, transverse row of sensory pores absent on basal region of epipharynx; right mandible (Fig.



Fig. 1. Habitus of *Agaricomorpha ashei* sp. nov. 1.6 mm.

3) with distinct median tooth, prostheca well developed, divided into two distinct areas, condylar molar patch narrow, composed of toothlike structures; maxillary palpomeres (Fig. 4) 2–3 dilated distally, 4 with a small spine at apex; labium (Fig. 5) with ligula protruded, parallel-sided, divided in apical three-fourths, almost as long as labial palpomere 1, labial palpus with two palpomeres,

palpomere 1 longer than 2, one medial seta present on prementum, medial pseudopore field of prementum narrow and without pseudopore, mentum not emarginated in anterior margin.

Thorax. Pronotum markedly transverse, about 1.7 times wider than long, widest at half, surface slightly pubescent; hypomeron not visible in lateral aspect; elytra wider than pronotum, postero-laterally sinuate; mesoventrite (Fig. 6) with longitudinal carina, extended to  $\frac{3}{4}$  of mesoventral process, mesoventral process extended to  $\frac{3}{4}$  of coxal cavities, metaventral process short and truncate at apex, distinctly shorter than mesoventral process; isthmus absent; mesocoxae broadly separated; tarsomere 1 of front and middle legs as long as 2, 1 about 1.5 times longer than 2 in hind leg, with an empodial seta between tarsal claws.

Abdomen. Tergites III–V slightly transversely impressed; tergite X with five to seven macrosetae on each side.

Genitalia. Spermatheca (Fig. 8) simple and round at base; median lobe (Figs. 9–10) slightly bulbous at base, elongate, apical process of median lobe short and not bifid, flagellum well sclerotized and developed, moderate in length and curved subapically; paramere (Fig. 11) with apical lobe of paramerite broad, subcylindrical with four setae, 3 distinct and elongate, 1 very small, condylite subequal in length to apex of paramerite.

Secondary sexual characteristics. Males: posterior margin of abdominal tergite VIII (Fig. 7) with broad semicircular emargination medially.

Type Material

HOLOTYPE, male, labeled as follows: KO-REA: Chungnam Prov., Cheonan City, Ibjang-myeon, Hodang-ri, 27-VI-2006, N 36° 53' 08.3" E 127° 15' 34.7", 210 m, SJ Park, ex mushrooms on log; Holotype, *Agaricomorpha ashei* Kim and Ahn, Desig. Y.-H. Kim and K.-J. Ahn 2014. Paratypes, 9♂ 3♀ (3♂ on slides), same data as holotype.

Distribution

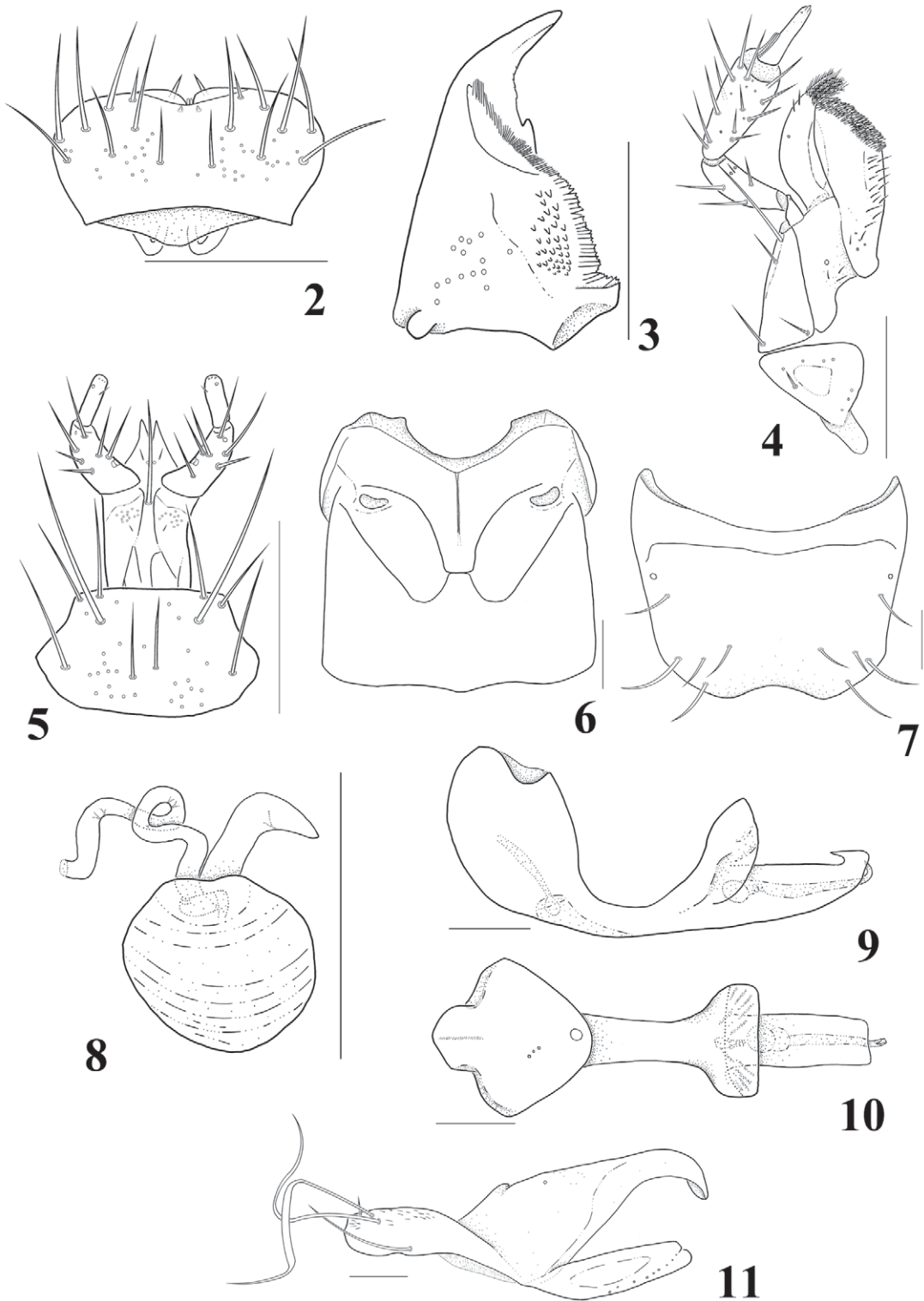
Korea (South).

Etymology

Named after the late James S. Ashe in honor of his research on the subtribe Gyrophaenina.

KEY TO THE SPECIES OF THE GENUS *AGARICOMORPHA* ASHE

- 1. Male tergite VII with a pair of very small tubercles; median lobe with flagellum elongate and whip-like ..... *A. apacheana*
- Male tergite VII without tubercle; medial lobe with flagellum short ..... 2



Figs. 2-11. Diagnostic characters of *Agaricomorpha ashei* **sp. nov.** (2) labrum, dorsal aspect; (3) right mandible, ventral aspect; (4) maxilla, ventral aspect; (5) labium, ventral aspect; (6) meso- and metaventrites, ventral aspect; (7) male tergite VIII, dorsal aspect; (8) spermatheca; (9) median lobe, lateral aspect; (10) median lobe, ventral aspect; (11) paramere, lateral aspect. Scales = 0.1 mm.

2. Body typically dark brown; male tergite VIII with a median tubercle . . . . . *A. websteri*  
 —. Body typically reddish brown to brown; male tergite VIII without tubercle . . . . *A. ashei* **sp. nov.**

## DISCUSSION

At present, the gyrophaenine beetle genus *Agaricomorpha* Ashe contains only 2 species distributed in the Nearctic region. *Agaricomorpha apacheana* (Seevers 1951) has been recorded from southwestern U.S.A. and *A. websteri* Klimaszewski & Brunke 2012 (in Brunke et al. 2012) from southeastern Canada. Moreover, Ashe (1984) listed *Agaricomorpha* “undescr. sp. 1–6” as occurring in Mexico, Canada, Panama, and Guatemala. The genus *Agaricomorpha* is probably distributed widely in Central and North America. Here, we describe the third species, extending the known distributional range of the genus from the Nearctic into the Palaearctic region.

This represents a disjunct distribution between eastern Asia and eastern North America, which is paralleled by other rove beetle and diving beetle genera, such as *Brathinus* LeConte (Staphylinidae) (Peck 1975) and the *Platambus optatus* species group (Dytiscidae) (Nilsson 1997), these distributional patterns are other examples of relicts of Northern Hemisphere temperate forests during the Tertiary (Wu 1983).

We hypothesize that the recent distribution of *Agaricomorpha* is probably a result of Pleistocene land bridges connecting Asia and North America. Moreover, it is likely that several species of the genus will be discovered in other Asian countries, such as China and Japan.

## ACKNOWLEDGMENTS

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