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Four Homalotine Species New to Korea (Coleoptera: Staphylinidae: Aleocharinae)

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ABSTRACT

Four homalotine species−*Anomognathus armatus* (Sharp), *Heterota onorum* Maruyama, *Neosilusa ceylonica* (Kraatz), and *Silusa lanuginosa* Sharp-and three genera−*Anomognathus* Solier, *Neosilusa* Cameron, *Silusa* Erichson-are identified for the first time in Korea. The tribe Homalotini can be distinguished from other related tribes by the combination of the following characters: tarsal formula 4-4-5; mandible with patch or rows of denticles in ventral molar region; base of medial setae of prementum very close together, setal insertions in contact in many, setae displaced one behind the other in some; medial pseudopore field of prementum very narrow in many. Habitus photographs, diagnoses, and illustrations of male genitalia of these four species are provided.

Keywords: Coleoptera, Staphylinidae, Aleocharinae, Homalotini, Korea

INTRODUCTION

The tribe Homalotini Heer is one of the most species rich aleocharine tribes including more than 2300 described species in 152 genera worldwide (Newton and Thayer, 2005; Ashe, 2007). Members of Homalotini can be distinguished from other related tribes by the combination of the following characters: tarsal formula 4-4-5; mandible with patch or rows of denticles in ventral molar region; base of medial setae of prementum very close together, setal insertions in contact in many, setae displaced one behind the other in some; medial pseudopore field of prementum very narrow in many (Ashe, 1992, 2001).

During our studies of Korean Homalotini, we identified four species new to Korea. In this paper, we report four species, *Anomognathus armatus* (Sharp), *Heterota onorum* Maruyama, *Neosilusa ceylonica* (Kraatz), and *Silusa lanuginosa* Sharp for the first time in Korea. Further, we provide habitus photographs, diagnoses, and illustrations of the male genitalia of these four species.

MATERIALS AND METHODS

For scanning electron microscopy (SEM), specimens were dissected in water by using fine insect pins. The dissected specimens were mounted on carbon tapes on slides, dried at 60°C on a slide warmer for 24 h, and sputter-coated with Pt/Pd nanoparticles by using a sputter coater (Cressington 208 HR; Cressington Scientific Instruments Ltd., Watford, UK). Afterward, they were observed in a SEM (Hitachi S-4800; Hitachi High-Technologies Corporation, Tokyo, Japan). The terminology used here basically follows Sawada (1972) and Ashe (1984).

RESULTS

Order Coleoptera Linnaeus, 1758
Family Staphylinidae Latreille, 1802
Subfamily Aleocharinae Fleming, 1821
Tribe Homalotini Heer, 1839

[1]*Genus *Anomognathus* Solier, 1849

Anomognathus Solier, 1849: 337.

Korean name: [1]*호리납작바수염반날개속(신칭)

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Type species: *Anomognathus filiformis* Solier, 1849.

[1]***Anomognathus armatus* (Sharp, 1888) (Figs. 1A, 2A)**

Thectura armata Sharp, 1888: 294.

Anomognathus armatus: Fenyes, 1914: 45; 1918: 85; Smetana, 2004: 447; Assing, 2011: 306.

Material examined. Korea: Chungnam Prov., Daejeon-si, Dong-gu, Secheon-dong, Mt. Sikjangsan, 36° 19′11.34″N, 127° 29′59.7″E, 170 m, 11 Apr 2010, Yoo IS, Lee SG, under bark (4 ex, 1♂1♀ on slides); Gongju-si, Mt. Gyeryongsan, Dongwol, 36° 19′39.0″N, 127° 15′46.7″E, Ahn KJ, Choi SM, Park JS, ex FIT (2 ex); Jeonnam Prov., Hadong-gun, Hwagye-myeon, Ssanggyesa, 25 May 2000, Ahn KJ, under bark (13 ex).

Diagnosis. Body (Fig. 1A) length 1.7–2.1 mm. Body dorsoventrally strongly flattened, parallel-sided; reddish brown to dark brown, head and abdominal tergites VI–VIII dark brown. *Head*. Subquadrate, almost as wide as pronotum; antennomeres 4–10 transverse. *Thorax*. Pronotum more or less subquadrate about 1.1 times wider than long, surface pubescent, directed laterally on each side of midline; length ratio of elytra to pronotum 1.16. *Genitalia*. Spermatheca simple and round at base, duct more or less straight, tube with one distinct curve. Median lobe of aedeagus (Fig. 2A) bulbous at base, apical process slender and elongate, shorter than basal bulb. *Secondary sexual characteristics*. Male tergite VIII with five processes, outer two processes curved and pointed apically, median process largest and with two lateral teeth, processes of female tergite VIII shorter than male.

Distribution. Korea (South), Japan, Taiwan.

[2]*Genus *Heterota* Mulsant and Rey, 1874

Heterota Mulsant and Rey, 1874: 194.

Type species: *Homalota plumbea* Waterhouse, 1858.

[3]***Heterota onorum* Maruyama, 2011 (Figs. 1B, 2B)**

Heterota onorum Maruyama, 2011: 98.

Material examined. Korea: Jeonnam Prov., Yeosu-si, Samsan-myeon, Geomun-ri, Isl. Geomundo, 34° 01′31.4″N, 127° 18′48.8″E, 7 m, 2 Jul 2011, Yoo IS, under decaying seaweeds on seashore (15 ex, 2♂♂1♀ on slide); Jeju Prov., Jeju-si, Oedoi-dong, 33° 29′48.2″N, 126° 26′29.0″E, 3 m, 9 Sep 2010, Kim TK, Yoo IS, under decaying seaweeds on pebble beach (6 ex, 1♂1♀ on slides).

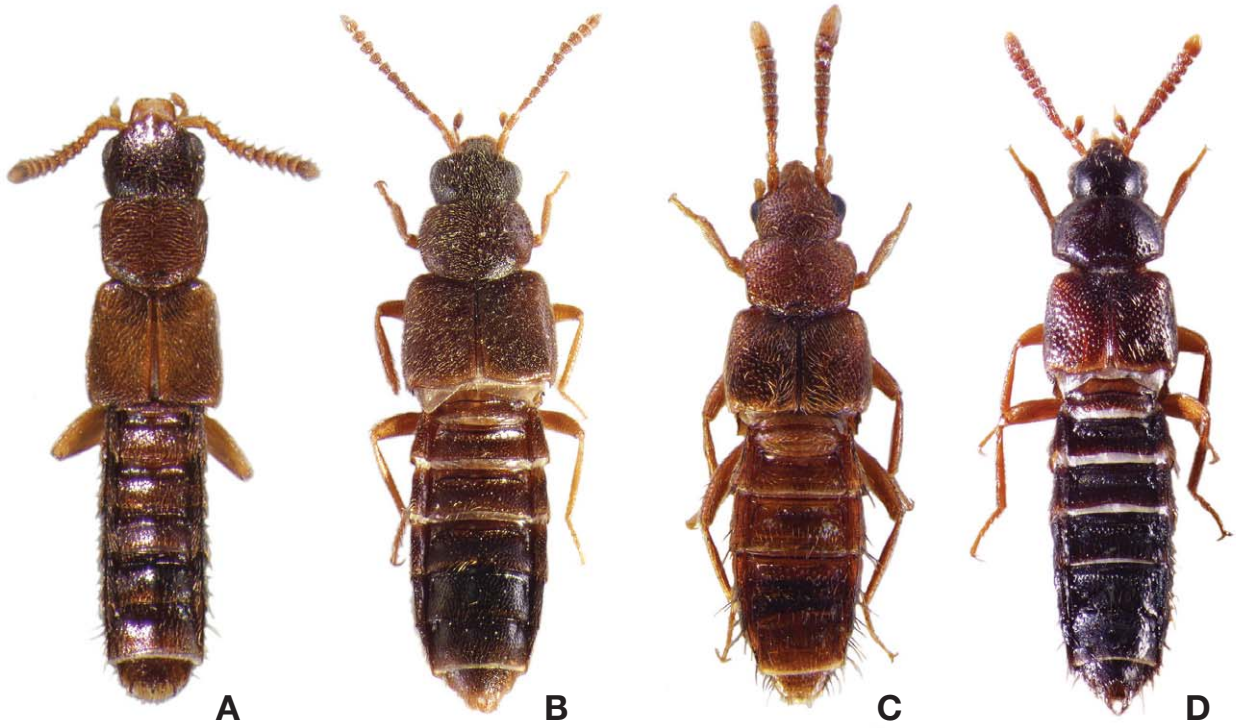

Fig. 1. Habitus. A, *Anomognathus armatus*, 1.9 mm; B, *Heterota onorum*, 2.8 mm; C, *Neosilusa ceylonica*, 2.0 mm; D, *Silusa lanuginosa*, 3.4 mm.

Korean name: [1]*호리납작바수염반날개 (신칭), [2]*털보연안바수염반날개속 (신칭), [3]*큰털보연안바수염반날개 (신칭)

Diagnosis. Body (Fig. 1B) length 2.6–2.9 mm. Body robust, subparallel-sided; brown to reddish brown, head and abdominal tergites VI–VII dark brown. *Head*. Antennomeres 4–5 elongate, 6 slightly elongate, 7–8 subquadrate, 9–10 slightly transverse. *Thorax*. Pronotum transverse about 1.35 times wider than long, widest at middle; width ratio of elytra to pronotum 1.33. *Genitalia*. Spermatheca simple and elongate at base, duct elongate and curved, apical part oblong oval. Median lobe of aedeagus (Fig. 2B) bulbous at base, apical process elongate and narrowed apically, shorter than basal bulb, flagellum short. *Secondary sexual characteristics.* Male sternite VIII postero-medially distinctly prolonged, female sternite VIII slightly pointed posteriorly.

Distribution. Korea (South), Japan.

Remarks. This coastal species is similar to *Heterota plumbea* (Waterhouse), but can be distinguished by more robust body, male tergite VIII not dentate posteriorly and short flagellum of median lobe.

[1*]Genus *Neosilusa* Cameron, 1920

Neosilusa Cameron, 1920: 232.

Type species: *Stenusa ceylonica* Kraatz, 1857.

[2*]***Neosilusa ceylonica* (Kraatz) (Figs. 1C, 2C)**

Stenusa ceylonica Kraatz, 1857: 8.

Pronomaea subrufa Motschulsky, 1861: 149.

Silusa crassicornis Sharp, 1888: 374.

Silusa (*Stenusa*) *ceylonica*: Fenyes, 1914: 46.

Silusa (*Plagiusa*) *ceylonica*: Fenyes, 1918: 82.

Neosilusa ceylonica: Cameron, 1920: 233; Pace, 1984: 15; 1993: 71; 1998: 142; Smetana, 2004: 450.

Plagiusa ceylonica: Cameron, 1939: 167.

Material examined. Korea: Jeonnam Prov., Sinan-gun, Heu-

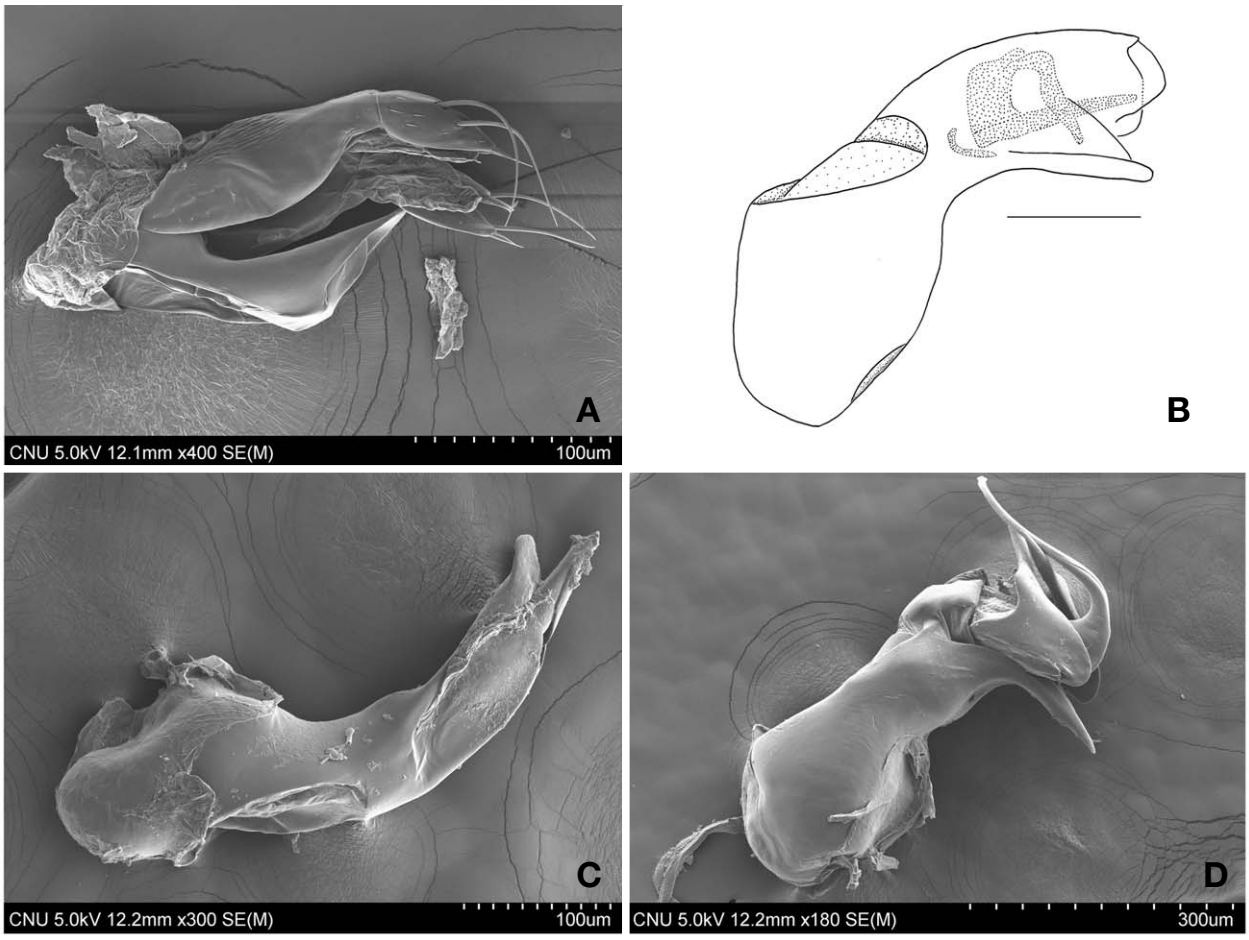

Fig. 2. Median lobe, lateral aspect. A, *Anomognathus armatus*; B, *Hererota onorum*; C, *Neosilusa ceylonica*; D, *Silusa lanuginosa*. Scale bar: B=0.1 mm.

Korean name: [1*]구멍수염바수염반날개속(신칭), [2*]구멍수염바수염반날개(신칭)

ksan-myeon, Hongdo-ri, Yangsanbong, Isl. Hongdo, 34° 40′ 45.2″N, 125° 11′32.6″E, 22 Aug 2006, Min HK coll., ex sifting (22♂♂♀♀, 2♂♂ on slides); Sinan-gun, Heuksan-myeon, Sosa-ri, Isl. Heuksando, 34° 39′34.9″N, 125° 25′03.8″E, 23 Aug 2006, Min HK coll., ex sifting (1 ex); Jeonbuk Prov., Jeongeup-si, Gamgok-myeon, Ogongjae (pond), 22 Jul−5 Aug 2004, col. Cho YB, bamboo forest by FIT (3 ex); Gyeongnam Prov., Jingu-si, Gajoa-dong, Gyeongsang Univ., 29 Aug 2003, Lim CS, ex bait (7 ex); Chungnam Prov., Daejeon-si, Chungnam National Univ., 20 May 2002, Park JS, Choi JH, ex sifting (2 ex); Kongju-si, Kyerong-myeon, Jungjang-ri, Kyerongsan, Kapsa, 12 Aug 2000, Kim MH, ex mushroom (1 ex).

Diagnosis. Body (Fig. 1C) length 1.8−2.4 mm. Body slightly robust and rugose; surface punctuate; reddish brown, antennomeres 4−10 brown, abdomen strongly glossy, posterior-half of abdominal tergite V and tergite VI dark brown. *Head*. Eyes moderate in size, slightly shorter than postocular region; antennomere 4 elongate, 5 subquadrate, 6−10 incrassate toward apex. *Thorax*. Pronotum about 1.4 times wider than long, lateral margin distinctly emarginate on basal half, widest at apical third, three pit-like basal impressions present. *Abdomen*. Tergites III−IV deeply excavate. *Genitalia*. Spermatheca simple and rounded at base, duct with about 90° bent and tube sclerotized. Median lobe of aedeagus (Fig. 2C) bulbous at base, apical process elongate, slightly curved ventrally in lateral aspect, as long as basal bulb. *Secondary sexual characteristics*. Male tergite IV with two tubercles at middle; male tergite VII with six tubercles; posterior margin of male tergite VIII highly modified.

Distribution. Korea (South), China (Beijing, Guandong, Guizhou, Henan, Hongkong, Jiangsu, Sichuan, Yunnan, Zhejiang), Japan, Taiwan, India (Himachal Pradesh, Uttaranchal, Uttar Pradesh), Afrotropical, Australian Region.

Remarks. *Neosilusa ceylonica* is can be distinguished from other *Neosilusa* species by the following features: antennomere 5 subquadrate, male tergite IV with two tubercles, male tergite VII with six tubercles and structure of median lobe.

[1]*Genus *Silusa* Erichson, 1837

Silusa Erichson, 1837: 377.

Type species: *Silusa rubiginosa* Erichson, 1837.

[2]****Silusa* (*Silusa*) *lanuginosa* Sharp, 1888 (Figs. 1D, 2D)**

Silusa lanuginosa Sharp, 1888: 375.

Silusa (*Silusa*) *lanuginosa*: Smetana, 2004: 450.

Material examined. Korea: Chungbuk Prov., Yeongdong-gun, Sangcheon-myeon, Mulhan-ri, Mt. Minjujisan, 36° 03′ 35.22″N, 127° 52′31.26″E, 518 m, 10 Apr 2011, Kim YH, Kim YG, decaying persimmons (25 ex, 1♂1♀ on slides).

Diagnosis. Body (Fig. 1D) length about 3.4 mm. Body slightly robust, parallel-sided, glossy; surface punctuate; reddish brown to brown, head and abdomen dark brown. *Head*. Eyes moderate in size, shorter than postocular region; antennomere 4 subquadrate, 5−10 transverse. *Thorax*. Pronotum transverse, about 1.4 times wider than long, widest at apical fourth, round basal margin; elytra postero-lateral margin strongly sinuate. *Abdomen*. Tergites III−V deeply impressed. *Genitalia*. Spermatheca simple and round at base, duct with about 90° bent and tube twisted. Median lobe of aedeagus (Fig. 2D) bulbous at base, apical process slender and elongate, with some teeth on ventrally, distinctly shorter than basal bulb, genital process well developed, curved posteriorly, flagellum well sclerotized and developed. *Secondary sexual characteristics*. Postero-medial margin of male tergite VII with a distinct tubercle; male tergite VIII with seven short processes.

Distribution. Korea (South), China (Jilin), Japan.

Remarks. This species was collected from decaying persimmons at early spring in Korea.

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