

Fifteen Newly Recorded Species of the Subfamily Doryctinae (Hymenoptera) in Korea

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ABSTRACT

Doryctinae is a large and heterogeneous group with more than 1,000 described. It is idiobiont ectoparasitoids on the larvae of wood-boring and xylophagous beetles. Some species attack larvae of wood boring lepidoptera. In the present study, fifteen species belonging to eight genera of the subfamily Doryctinae are recorded for the first time from Korea: *Doryctes* Haliday (2 species), *Eodendrus* Belokobylskij (1 species), *Heterospilus* Haliday (4 species), *Monolexis* Förster (1 species), *Neurocrassus* Snoflak (2 species), *Rhoptrocentrus* Marshall (1 species), *Sonanus* Belokobylskij et Konishi (1 species), *Spathius* Nees (3 species). The genera *Eodendrus* Belokobylskij, *Monolexis* Förster, *Rhoptrocentrus* Marshall, *Sonanus* Belokobylskij et Konishi and fifteen species are reported for the first times from Korea. Diagnosis and host information are provided.

Keywords: Doryctinae, Hymenoptera, new record, Korea

INTRODUCTION

Braconid wasps of the subfamily Doryctinae are a large and heterogeneous group with more than 1,000 described species and about 200 genera (Shenefelt and Marsh, 1976; Belokobylskij, 1992; Marsh, 1993, 2002; Belokobylskij et al., 2004; Belokobylskij and Maeto, 2009).

Doryctinae is idiobiont ectoparasitoids on the larvae of wood-boring and xylophagous beetles: Bostrichidae, Buprestidae, Cerambycidae, Curculionidae and Scolytidae (Tobias, 1967; Shaw and Huddleston, 1991; Belokobylskij, 1996b, 1996c). Some species attack larvae of wood boring lepidoptera or sawflies: Xiphydriidae and Xyelidae, and some attack pre-imaginal stages of other insects like Embiidinae (Shaw and Edgerly, 1985; Belokobylskij and Maeto, 2009). The members of *Heterospilus* Haliday, *Rhoptrocentrus* Marshall and *Spathius* Nees are attack lepidoptera: Crambidae, Gelechiidae, Pyralidae and Tortricidae (Belokobylskij and Maeto, 2009).

The subfamily Doryctinae has been poorly studied in Korea. Previously, only 52 species in 14 genera were recorded

by Kim (1963), Papp (1987a, 1987b, 1992), Belokobylskij and Ku (2001), Ku et al. (2001), Belokobylskij (2006), Belokobylskij et al. (2012, 2013), Kim et al. (2016, 2018), and Lee et al. (2017, 2018).

In the present study, fifteen species are reported for the first time from Korea: *Doryctes denticoxa* Belokobylskij, *D. striatellus* (Nees), *Eodendrus eous* (Belokobylskij), *Heterospilus ater* Fischer, *H. chinensis* Chen et Shi, *H. kerzhneri* Belokobylskij et Maeto, *H. rubrocinctus* (Ashmead), *Monolexis fusicornis* Förster, *Neurocrassus hypodoryctoides* Belokobylskij et Maeto, *N. rarus* (Belokobylskij), *Rhoptrocentrus piceus* Marshall, *Sonanus senzuensis* Belokobylskij et Konishi, *Spathius amoenus* Belokobylskij, *S. honshuensis* Belokobylskij, *S. tsukubaensis* Belokobylskij et Maeto. Diagnosis and photographs are provided for each species.

MATERIALS AND METHODS

Material examined in this study was deposited at the Science Museum of Natural Enemies (SMNE), Geochang, Korea.

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Terminology used in this paper follows that of Achterberg (1993). Abbreviations of Korean province used in the present study are as follows: CB, Chungbuk; GB, Gyeongbuk; GG, Gyeonggi; GN, Gyeongnam; GW, Gangwon.

SYSTEMATIC ACCOUNTS

Order Hymenoptera Linnaeus, 1758
Family Braconidae Nees, 1811
Subfamily Doryctinae Förster, 1863

Genus *Doryctes* Haliday, 1836

Rogas (*Doryctes*) Haliday, 1836: 40, 43.

Doryctes: Shenefelt and Marsh, 1976: 1277; Belokobylskij and Tobias, 1986: 43; Belokobylskij, 1998: 58; Belokobylskij and Maeto, 2009: 96. Type species (by designation): *Bracon obliterates* Nees, 1834.

Diagnosis. Neck of pronotum dorsally with distinctly convex lobe, which is sometimes weakly divided medio-dorsally. Mesonotum not highly and gently-roundly elevated above pronotum. Vein CU1a of fore wing usually arising from posterior 0.25–0.3 of distal margin of CU1b. 2nd suture usually distinct and often with lateral bends. Ovipositor usually shorter than metasoma.

¹**Doryctes denticoxa* Belokobylskij, 1996

Doryctes denticoxa Belokobylskij, 1996a: 164; 1998: 60; Belokobylskij and Maeto, 2009: 103.

Material examined. Korea: 1♀, GG: Suwon, Mt. Yeogisan, 16 Jun 1997, Choi JY-coll. SMNE.

Diagnosis. Body length 3.8–11.5 mm. Antennal segments 46–65. Mesoscutum mostly smooth; maximum width of mesoscutum 0.9 times its median length. Vein m-cu of fore wing 2.5–4.0 times longer than vein 2-SR + M. Hind basitarsus 0.8–0.9 times as long as second-fifth segments of hind tarsus combined. Ovipositor sheath 0.6–0.8 times as long as body, 1.2–1.5 times longer than metasoma, 0.85–1.15 times as long as fore wing. Body dark reddish brown to black.

Distribution. Korea (new record), China (Fujian, Guangdong, Guizhou, Henan, Zhejiang), Japan.

Host. Unknown.

²**Doryctes striatellus* (Nees, 1834)

Bracon striatellus Nees, 1834: 107.

Doryctes striatellus: Shenefelt and Marsh, 1976: 1292; Belo-

kobylskij et al., 2003: 376; Belokobylskij and Maeto, 2009: 124.

Material examined. Korea: 1♀, GB, Gyeongsan, Yeungnam University, 30 Oct 1986-coll. SMNE.

Diagnosis. Body length 3.9–7.9 mm. Antennal segments 36–44. Median lobe of mesoscutum rather distinctly convex, with shallow median furrow. Vein 1-SR + M of fore wing distinctly S-shaped; vein m-cu 3.0–6.0 times longer than vein 2-SR + M. 2nd metasomal tergite with very shallow lateral subparallel longitudinal smooth stripes. 3rd tergite without transverse furrow. Body reddish brown to dark reddish brown.

Distribution. Korea (new record), Europe (Belgium, Finland, France, Germany, Hungary, Italy, Poland, Sweden), China (Guizhou, Jilin), Japan, Russia (Astrakhanskaya Oblast, Ryazan Oblast, Samarskaya Oblast, Sverdlovsk Oblast, Yaroslavl Oblast).

Host. *Ernobius abietis* (Fabricius), *Dorcatoma dresdensis*, *Ernobius mollis* (Ptinidae), *Callidium violaceum*, *Obrium brunneum* (Fabricius), *Monochamus galloprovincialis*, *Pogonocherus hispidus*, *Pyrrhidium sanguineum* (Cerambycidae), *Magdalis rufa*, *Magdalis violacea* (Curculionidae), *Xiphydria camelus* (Linnaeus) (Xiphydriidae) (Yu et al., 2016).

Genus *Eodendrus* Belokobylskij, 1998

Dendrosotinus (*Eodendrus*) Belokobylskij, 1998: 66.

Eodendrus: Belokobylskij et al., 2005: 2716; Belokobylskij and Maeto, 2009: 153. Type species (by original designation): *Dendrosotinus eous* Belokobylskij, 1988.

Diagnosis. Mesonotum rather highly and usually almost perpendicularly elevated above pronotum. Median lobe of mesonotum distinctly protruding forward. Notauli rather wide, deep in anterior half, shallow or almost absent in posterior half. Sternaulus rather deep, long, almost straight, running along entire length of lower part of mesopleuron. 2nd tergite with more or less distinct and curved longitudinal furrows. Ovipositor usually not longer than body.

³**Eodendrus eous* (Belokobylskij, 1988)

Dendrosotinus eous Belokobylskij, 1988: 627.

Dendrosotinus (*Eodendrus*) *eous*: Belokobylskij, 1998: 66.

Eodendrus eous: Belokobylskij et al., 2005: 2731; Belokobylskij and Maeto, 2009: 155.

Material examined. Korea: 1♀, GG: Suwon, Mt. Yeogisan, 11 Aug 1997, Choi JY-coll. SMNE.

Diagnosis. Length of body 1.9–4.3 mm. Antennal segments 23–31. Vein 1-SR + M of fore wing weakly S-shaped; vein

Korean name: ¹*밀마디가시창고치벌 (신칭), ²*줄무늬창고치벌 (신칭), ³*여명고치벌 (신칭)

m-cu of hind wing rather short, curved toward base of wing, weakly sclerotised, weakly antefurcal. 1st metasomal tergite with more or less distinct spiracular tubercles in basal 0.3; maximum width of 1st tergite 1.7–2.0 times its minimum width; length 1.4–1.6 times its apical width. Ovipositor sheath 1.1–1.3 times longer than fore wing. Body dark reddish brown or reddish brown.

Distribution. Korea (new record), Japan, Russia (Primorsk Krai).

Host. Unknown.

Genus *Heterospilus* Haliday, 1836

Rogas (*Heterospilus*) Haliday, 1836: 46.

Heterospilus: Förster, 1863: 239; Fischer, 1960: 33; Shenefelt et Marsh, 1976: 1298; Belokobylskij, 1983: 172; Belokobylskij and Tobias, 1986: 32; Belokobylskij, 1998: 74; Chen and Shi, 2004: 66; Belokobylskij and Maeto, 2009: 166. Type species (by monotypy): *Heterospilus quaestor* Haliday, 1836.

Diagnosis. Scape short and rather wide, usually without apical flange and subbasal constriction, but sometimes with apical flange. Vein 2-SR of fore wing strongly desclerotised, almost absent; vein 1-SC + R of hind wing absent. 2nd tergite without or sometimes with more or less distinct transverse furrow in apical 0.3 separated rather narrow posterior area. Ovipositor different length, from much shorter than metasoma to longer than body.

^{1*}***Heterospilus ater* Fischer, 1960**

Heterospilus ater Fischer, 1960: 36; Shenefelt and Marsh, 1976: 1301; Belokobylskij and Tobias, 1986: 34; Belokobylskij, 1998: 76; Belokobylskij and Maeto, 2009: 187.

Material examined. Korea: 1 ♀, GG: Suwon, Mt. Yeogisan, 11 May 1994, Ku DS-coll. SMNE.

Diagnosis. Body length 1.7–2.5 mm. Antennal segments 17–21. Scape rather short and thick, 1.3–1.5 times longer than its maximum width. Frons mostly smooth; vertex smooth or partly finely striate. Vein CU1a of fore wing basally weakly curved; vein m-cu of hind wing unsclerotized, regularly curved towards apex of wing. Ovipositor sheaths rather slender, 0.65–0.80 times as long as metasoma. Head dark brown; Mesosoma dark reddish brown; legs yellow.

Distribution. Korea (new record), China (Guangxi, Hebei, Hunan, Jilin, Liaoning, Zhejiang), Germany, Hungary, Japan, Russia (Primorsk Krai).

Host. *Xylocleptes bispinus* (Scolytidae) (Tobias, 1976).

^{2*}***Heterospilus chinensis* Chen et Shi, 2004**

Heterospilus chinensis Chen and Shi, 2004: 72.

Heterospilus asiaticola Belokobylskij et Maeto, 2009: 183.

Syn. by Tang et al., 2013.

Material examined. Korea: 1 ♀, CB: Chungju, Sanchok, Yongdong, 23 May 1993, Ku DS-coll. SMNE.

Diagnosis. Body length 1.6–3.1 mm. Antennal segments 17–25. Scape rather short and thick. Median lobe of mesoscutum weakly protruding forwards, with indistinct and obtuse anterolateral shoulders, almost straight or weakly convex anteriorly. Propodeum without lateral tubercles. Vein m-cu of fore wing distinctly postfurcal; subdiscal cell widely open distally. Ovipositor sheaths rather slender. Head yellow or brownish yellow; mesosoma reddish brown.

Distribution. Korea (new record), China (Fujian, Guangdong, Hunan, Zhejiang), Japan.

Host. *Phytoecia rufiventris* (Cerambycidae) (Tang et al., 2013).

^{3*}***Heterospilus kerzhneri* Belokobylskij et Maeto, 2009**

Heterospilus kerzhneri Belokobylskij and Maeto, 2009: 201.

Material examined. Korea: 1 ♀, GN: Goseong, Sangri, Museon, Mt. Muisan, 22 May 1998, An TH-coll. SMNE.

Diagnosis. Body length 2.4–3.1 mm. Antennal segments 19–23. Scape rather short and thick, about twice longer than enlarged pedicel. Mesosoma more or less depressed, its length 2.2–2.7 times maximum height. Vein M + CU1 of fore wing weakly S-shaped; Basal cell of hind wing narrow. 1st metasomal tergite with small spiracular tubercles in basal 0.3. 2nd suture rather distinct, very weakly and regularly curved. Mesosoma reddish brown; antenna dark reddish brown to black.

Distribution. Korea (new record), China (Anhui, Hunan, Zhejiang), Japan, Russia (Primorsk Krai).

Host. Unknown.

^{4*}***Heterospilus rubrocinctus* (Ashmead, 1905)**

Hecabolus rubrocinctus Ashmead, 1905: 8.

Heterospilus rubrocinctus: Shenefelt and Marsh, 1976: 1311;

Belokobylskij, 1994: 23; Belokobylskij and Maeto, 2008: 142; 2009: 175.

Heterospilus oculatus: Belokobylskij, 1988: 628. Syn. by Belokobylskij and Maeto, 2009.

Material examined. Korea: 1 ♀, GG: Korea National Arboretum, 27 Jul 1998, Park YM-coll. SMNE.

Diagnosis. Body length 1.2–2.3 mm. Antennal segments 15–

Korean name: ^{1*}거무칙척반점고치벌 (신칭), ^{2*}국화하늘소살이고치벌 (신칭), ^{3*}유아등반점고치벌 (신칭), ^{4*}소바구미살이반점고치벌 (신칭)

20. Scape rather long and more or less slender, 1.7–2.0 times longer than its maximum width. 1st metasomal tergite without spiracular tubercles; tergite distinctly and almost linearly widened from base to apex. Ovipositor sheath 0.5–0.7 times as long as metasoma, 0.3–0.45 times as long as fore wing. Head and mesosoma reddish brown or dark reddish brown; metasoma brownish yellow in basal half.

Distribution. Korea (new record), China (Zhejiang), Japan, Philippines, Russia (Primorsk Krai).

Host. *Choragus scheppardi* (Anthribidae) (Belokobylskij and Maeto, 2009).

Genus *Monolexis* Förster, 1863

Monolexis Förster, 1863: 237; Nixon, 1943b: 261; Shenefelt and Marsh, 1976: 1358; Papp, 1984: 181; Belokobylskij, 1998: 72; Belokobylskij et al., 2004: 65; Belokobylskij and Maeto, 2009: 310. Type species (by original designation): *Monolexis fuscicornis* Förster, 1863.

Diagnosis. Mesonotum highly and almost perpendicularly elevated above pronotum. Median lobe of mesonotum usually with anterolateral corners. Propodeum without areola. Mesonotum at least finely granulate or rugulose-granulate. Vein r-m of fore wing always absent; vein m-cu usually post-furcal, rarely interstitial or shortly antefurcal. Ovipositor longer than metasoma.

^{1*}*Monolexis fuscicornis* Förster, 1863

Monolexis fuscicornis Förster, 1863: 237; Shenefelt and Marsh, 1976: 1358; Papp, 1984: 181; Belokobylskij and Tobias, 1986: 37; Belokobylskij, 1998: 72; Belokobylskij and Maeto, 2009: 311.

Material examined. Korea: 1♀, GN: Jinju, Gajwa, 22 Apr 1989-coll. SMNE.

Diagnosis. Body length 1.8–3.7 mm. Antennal segments 17–26. Propodeum without lateral tubercles. Vein 3-SR of fore wing straight or weakly curved, 4.5–6.0 times longer than vein r. 1st metasomal tergite with very small spiracular in basal 0.3. Ovipositor sheath as long as body, 1.3–1.5 times longer than metasoma. Body reddish brown and usually darker dorsally; antenna dark reddish brown to black, yellowish brown basally.

Distribution. Korea (new record), Australia, Brazil, Canada, Europe (France, Germany, Hungary, Italy), Japan, USA.

Host. *Chaetoptelius vestitus* (Mulsant & Rey), *Mesosa curculionoides* (Linnaeus), (Curculionidae), *Amphicerus bimaculatus*, *Enneadesmus trispinosus* (Olivier), *Heterobostrychus brunneus* (Murray), *Lyctus brunneus* (Stephens), *Lyctus car-*

bonarius, *Lyctus linearis* (Goeze), *Lyctus parallelocolis*, *Scobicia chevrieri*, *Scobicia pustulata* (Fabricius), *Sinoxylon ceratoniae*, *Sinoxylon sexdentatum* (Olivier), *Trogoxylon parallelipedum* (Melsheimer) (Bostrichidae), *Laemophloeus capensis* (Waltl) (Laemophloeidae) (Yu et al., 2016).

Genus *Neurocrassus* Snoflak, 1945

Neurocrassus Snoflak, 1945: 26; Shenefelt, 1975: 1125; Whitfield, 1988: 471; Belokobylskij, 1993: 161; Belokobylskij and Maeto, 2009: 318. Type species (by monotypy): *Neurocrassus tesari* Snoflak, 1945.

Diagnosis. Upper tentorial pits present, round or oval. Vein m-cu of fore wing often antefurcal, rarely interstitial or post-furcal; fore wing sometimes with large or small sclerotised enlargement on basal and vein 1-CU1. 1st metasomal tergite not petiolate, usually wide and short, with distinct dorspoe. Ovipositor often shorter than body.

^{2*}*Neurocrassus hypodoryctoides* Belokobylskij and Maeto, 2006

Neurocrassus hypodoryctoides Belokobylskij and Maeto, 2006: 709; 2009: 329.

Material examined. Korea: 1♀, GW: Inje, Sangnam, Misan, Mt. Bangtaesan, 12 Aug 1986, Ku DS-coll. SMNE.

Diagnosis. Body length 3.1–4.7 mm. Antennal segments 29–34. Mesoscutum highly and roundly elevated above pronotum. Vein 1-SR + M of fore wing weakly S-shaped; vein m-cu antefurcal, 3.0–4.5 times longer than vein 2-SR + M. Metasoma 1.1 times longer than head and mesosoma combined. Ovipositor distinctly elongated; ovipositor sheath 1.1–1.4 times longer than body. Body black or dark reddish brown.

Distribution. Korea (new record), Japan.

Host. Unknown.

^{3*}*Neurocrassus rarus* (Belokobylskij, 1982)

Ontsira rara Belokobylskij, 1982: 606.
Neurocrassus rarus: Belokobylskij, 1993: 164; 1998: 66; Belokobylskij and Maeto, 2006: 716; 2009: 349.

Material examined. Korea: 1♀, GN: Hadong, Cheongam, Mukgye, Mt. Jirisan, 7–8 Jul 1997, Lee MK-coll. SMNE.

Diagnosis. Body length 2.2–3.2 mm. antennal segments 23–28. Head 1.4–1.5 times as wide as median length, not strongly and distinctly-roundly narrowed behind eyes. Vein m-cu of fore wing antefurcal, 5.0–7.0 times longer than vein 2-SR + M. Metasoma 0.9 times as long as mesosoma and head combined. 2nd metasomal tergite almost entirely densely and fine

Korean name: ^{1*}갈색주름창고치벌 (신칭), ^{2*}천일무심고치벌 (신칭), ^{3*}천고치벌 (신칭)

striate, with fine rugulosity between striae, sometimes smooth on rather small medioapical area. Ovipositor sheath 0.6–0.7 times as long as metasoma. Body black or dark reddish brown.

Distribution. Korea (new record), Japan, Russia (Primorsky Krai), Vietnam.

Host. Unknown.

Genus *Rhoprocentrus* Marshall, 1897

Rhoprocentrus Marshall, 1897: 99; Shenefelt and Marsh, 1976: 1330; Belokobylskij and Tobias, 1986: 37; Belokobylskij, 1998: 68; Belokobylskij and Maeto, 2009: 467. Type species (by monotypy): *Rhoprocentrus piceus* Marshall, 1897.

Diagnosis. Vertex more or less distinctly and usually completely transverse striate. Mesoscutum high elevated above pronotum. Vein m-cu fore wing postfurcal. 2nd tergite only basally sculptured, its latero-tergite not separated, with spiracles situated on lateral part of tergite. Ovipositor sheath widened apically, with short, semi-erect and very dense pale setae.

¹**Rhoprocentrus piceus* Marshall, 1897

Rhoprocentrus piceus Marshall, 1897: 99; Shenefelt and Marsh, 1976: 1330; Belokobylskij and Tobias, 1986: 37; Belokobylskij, 1998: 68; Konishi and Maeto, 2000: 308; Belokobylskij and Maeto, 2009: 468.

Doryctomorpha chlorophori Watanabe, 1951: 47; Belokobylskij, 1998: 69. Syn. by Belokobylskij and Maeto, 2009.

Material examined. Korea: 1 ♀, GN: Jinju, Jinyang, Geumgog, 10 Aug 1980, Jeong GJ-coll. SMNE.

Diagnosis. Body length 2.4–4.7 mm. Antennal segments 22–31. Sternaulus shallow, usually deep posteriorly, weakly S-shaped or almost straight, low and thick. Mesoscutum densely granulate-reticulate or granulate-rugulose. 1st metasomal tergite with distinct dorsope. Ovipositor sheath 1.1–1.4 times longer than body. Hind coxae laterally smooth, rugulose-punctate dorsally or dorso-basally. Body black or dark reddish brown.

Distribution. Korea (South), China, Europe (Croatia, Germany, Greece, Hungary, Poland), Japan, Russia (Bryansk Oblast), USA.

Host. *Acanthocinus griseus* (Fabricius), *Chlorophorus glabromaculatus* (Goeze), *Hylotrupes bajulus* (Linnaeus), *Penichroa fasciata* (Stephens), *Psacotha hilaris*, *Stromatium fulvum* (Cerambycidae), *Anthaxia corynthia*, *Buprestis haemorrhoidalis araratica* (Marseul) (Buprestidae), *Eupoecilia*

ambiguella (Hubner) (Tortricidae), *Gastrallus corsicus* (Ptinidae), *Heterobostrychus brunneus* (Murray), *Scobicia chevri-eri* (Villa & Villa) (Bostrichidae), *Hypothenemus eruditus*, *Pissodes notatus*, *Scolytus scotylus* (Curculionidae), *Phloeotribus scarabaeoides* (Bernard) (Scolytidae), *Xiphydria camelus* (Linnaeus) (Siricidae) (Yu et al., 2016).

Genus *Sonanus* Belokobylskij and Konishi, 2001

Sonanus Belokobylskij and Konishi, 2001: 132; Belokobylskij et al., 2004: 94; Belokobylskij and Chen, 2005: 395; Belokobylskij and Maeto, 2009: 476. Type species (by original designation): *Sonanus sensuensis* Belokobylskij and Konishi, 2001.

Diagnosis. Metanotum without median tooth. Sternaulus deep, long, straight and crenulate. Parallel vein arising from anterior 0.3–0.5 of apical side of brachial cell. 1st metasomal tergite wide, its acrosternite short, about 0.25 times as long as tergite. 2nd tergite with U-shape or subround area delineated by wide furrows. Ovipositor longer than metasoma.

²**Sonanus sensuensis* Belokobylskij and Konishi, 2001

Sonanus sensuensis Belokobylskij and Konishi, 2001: 133; Belokobylskij and Chen, 2005: 400; Belokobylskij and Maeto, 2009: 478.

Material examined. Korea: 1 ♀, GG: Suwon, Mt. Yeogisan, 23 Jun 1997, Choi JY-coll. SMNE.

Diagnosis. Body length 6.6 mm. Antennal segments 32. Compressed 1st flagellar segment 3.6 times longer than its maximum width, slightly longer than 2nd cylindrical segment. Median lobe of mesoscutum with distinct median depression. 2nd metasomal tergite with U-shaped median area delineated by narrow furrows. Hind coxa densely sculptured at least on dorsal half. Body dark reddish brown; head brownish yellow.

Distribution. Korea (new record), China (Beijing), Japan.

Host. Unknown.

Genus *Spathius* Nees, 1819

Spathius Nees, 1819: 301; Nixon, 1943a: 190; Shenefelt and Marsh, 1976: 1386; Belokobylskij, 2003: 348; Chen and Shi, 2004: 88; Belokobylskij and Maeto, 2009: 492. Type species (by monotype): *Cryptus clavatus* Panzer, 1809.

Diagnosis. Propodeum without lateral processes, rarely with more or less developed lateral processes. Metanotum without or with short apical tooth. Mesoscutum mostly granulate. Middle tibia with distinct spines. Vein CU1a of fore wing interstitial to vein M + CU1 or arising from anterior 0.2–0.3

Korean name: ¹*갈색긴꼬리고치벌 (신칭), ²*여기산고치벌 (신칭)

of distal margin of Subdiscal cell. Ovipositor from rather short to very long, as long as or longer than body.

¹**Spathius amoenus* Belokobylskij, 1998

Spathius amoenus Belokobylskij, 1998: 102; 2003: 377; Belokobylskij and Maeto, 2009: 520.

Material examined. Korea: 1♀, Ulsan: Sangbuk, Deokhyeon, Mt. Gajisan, 18 Aug 2001, Park JS-coll. SMNE.

Diagnosis. Body length 3.6–4.8 mm. Antennal segments 38. Mesopleuron medially almost smooth. 2nd metasomal tergite distinctly longitudinally striate and with fine rugulosity between striae. Hind coxa about 1.5 times longer than maximum width, with basoventral corner and distinct tooth. Hind femur thick, 2.8–3.0 times apical width. Subapical 11–13 segments of antenna pale yellow; mesosoma reddish brown to dark reddish brown.

Distribution. Korea (new record), China (Fujian, Zhejiang), Japan.

Host. Unknown.

²**Spathius honshuensis* Belokobylskij, 1998

Spathius honshuensis Belokobylskij, 1998: 83; 2003: 469; Belokobylskij and Maeto, 2009: 599.

Material examined. Korea: 1♀, GN: Hadong, Cheongam, Mukgye, Mt. Jirisan, 2–3 Aug 1997, Park JS-coll. SMNE.

Diagnosis. Body length 4.1–5.0 mm. Antennal segments 29–32. Mesoscutum highly and almost perpendicularly elevated above pronotum. Posterior branch of pronotal keel very fine and fused with posterior margin of pronotum. Hindcoxa without tooth, but with more or less distinct basoventral corner. Ovipositor sheath almost twice longer than metasoma. Body reddish brown, mesosoma in small spots.

Distribution. Korea (new record), Japan.

Host. Unknown.

³**Spathius tsukubaensis* Belokobylskij and Maeto, 2009

Spathius tsukubaensis Belokobylskij and Maeto, 2009: 730.

Material examined. Korea: 1♀, Ulsan: Sangbuk, Soho, Mt. Baegunsan, 24 Jul 2001 (J.S. Park)-coll. SMNE.

Diagnosis. Body length 2.3–3.5 mm. Antennal segments 25–30; penultimate segment of antenna long, 3.5–4.0 times longer than wide. Subdiscal cell closed weakly before level of vein m-cu of fore wing. 2nd metasomal tergite entirely and 3rd in basal half with separate laterotergites. Ovipositor sheath 0.5–0.7 times as long as mesosoma. Body dark brown or almost black; hind tibia pale basally.

Distribution. Korea (new record), Japan.

Host. Unknown.

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CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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