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Eight Newly Recorded Species of the Subfamilies Pteromalinae and Miscogastrinae (Hymenoptera: Pteromalidae) from South Korea

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한국산 금좀벌아과와 가시금좀벌아과(벌목: 금좀벌과)의 8미기록종 보고

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ABSTRACT: Four species (*Diglochis sylvicola* (Walker), *Lariophagus obtusus* Kamijo, *Mokrzeckia lazoensis* Tselikh, *Paracarotomus cephalotes* Ashmead) of the Pteromalinae and four species (*Lamprotatus duplicatus* (Kamijo), *L. hikosanus* (Kamijo), *Stictomischus momoii* Kamijo, *S. scaposus* Thomson) of the Miscogastrinae are recorded for the first time for the fauna of South Korea. Among them, *Diglochis* Förster, *Paracarotomus* Ashmead, and *Stictomischus* Thomson are newly recorded from South Korea. Additionally, a key to the South Korean genera of Pteromalinae and Miscogastrinae and photos of diagnostic characteristics are provided.

Key words: Chalcidoidea, first record, *Diglochis*, *Paracarotomus*, *Stictomischus*

초 록: 한국산 금좀벌아과의 4종 *Diglochis sylvicola* (Walker), *Lariophagus obtusus* Kamijo, *Mokrzeckia lazoensis* Tselikh, *Paracarotomus cephalotes* Ashmead과 가시금좀벌아과 아과의 4종 *Lamprotatus duplicatus* (Kamijo), *L. hikosanus* (Kamijo), *Stictomischus momoii* Kamijo, *S. scaposus* Thomson을 처음 보고한다. 이 중 3속 *Diglochis* Förster, *Paracarotomus* Ashmead, *Stictomischus* Thomson 은 한국에 처음 보고되는 속이다. 본 논문에서는 한국산 금좀벌아과와 가시금좀벌아과의 속 검색표와 진단 형질의 사진을 제공하였다.

검색어: 금좀벌과, 미기록종, *Diglochis*, *Paracarotomus*, *Stictomischus*

The family Pteromalidae is one of the numerous and economically important groups of parasitoids, but our knowledge of this group in South Korea is limited. To date, only 39 species of 27 genera belonging to five subfamilies have been recorded from this region (Chang, Youn, 1983; Chang et al., 1994; Cho et al., 2014; Chun et al., 1993; Kamijo, Grissell, 1982; Kamijo, 1983; Mitroiu, 2011; Paik, 1978, 1994; Peck, 1963; Ryoo et al., 1990; Rueda, 1997; Shin et al., 2000; Sureshan, 2003; Sureshan, Narendran, 2001, 2003; Thompson, 1958; Tselikh, 2011).

This study is based on the material from the Applied Entomology Division, Department of Agricultural Biology, National Academy of Agricultural Science (NAAS) and Yeungnam University, Gyeongsan, South Korea (YNU). As a result of this works, three genera (*Diglochis* Förster, *Paracarotomus* Ashmead, *Stictomischus* Thomson) and eight species (*Diglochis sylvicola* (Walker), *Lariophagus obtusus* Kamijo, *Mokrzeckia lazoensis* Tselikh, *Paracarotomus cephalotes* Ashmead, *Lamprotatus duplicatus* (Kamijo), *L. hikosanus* (Kamijo), *Stictomischus momoii* Kamijo, *S. scaposus* Thomson) are recorded for the first time in South Korea. Therefore, 35

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species of 27 genera in Pteromalinae and 9 species of 6 genera in Miscogastrinae are recorded from South Korea.

Materials and Methods

The present study is based on examination of the material from collections of the Applied Entomology Division, Department of Agricultural Biology, National Academy of Agricultural Science, South Korea (NAAS) and Yeungnam University, Gyeongsan, South Korea (YNU). Morphological terminology, including sculpture and wing venation nomenclature, follows that of Gibson (1997) and Graham (1969). The following abbreviations are used for morphology: POL - posterior ocellar line, minimum distance between posterior ocelli; OOL - ocell-ocular line, minimum distance between posterior ocellus and compound eye. The following abbreviations are used for type: TD - type depository; TL - type locality; TS - type species; The Natural History Museum, London, England (BMNH); Hokkaido University, Japan (EIHU); Zoological Museum of the Lund University, Sweden (LUZN); Naturhistorisches Museum, Vienna, Austria (NHMV); Queensland Museum, Brisbane, Australia (QMB); South Australian Museum, Adelaide, South Australia (SAMA); United States Museum of Natural History, Washington D.C., United States of America (USNM); Zoological Institute, St. Petersburg, Russia (ZISP); Zoologische Staatssammlung München, Munich, Germany (ZSMM). Finally, the following abbreviations are used for geographical territories: CB - Chungcheongbuk-do; CN - Chungcheongnam-do; GB - Gyeongsangbuk-do; GG - Gyeonggi-do; GN - Gyeongsangnam-do; GW - Gangwon-do; JN - Jeollanam-do.

Systematic accounts

A key to the genera of South Korean Pteromalinae and Miscogastrinae (modified from Bouček, Rasplus, 1991)

1. Notauli incomplete, not traceable in posterior quarter of mesoscutum. Margin of clypeus with symmetric teeth or without teeth (Fig. 1A). ····· Pteromalinae ····· 2
- Notauli complete, reaching transscutal groove. Margin of clypeus with distinctly asymmetric teeth (Fig. 1B). ····· ····· Miscogastrinae ····· 5

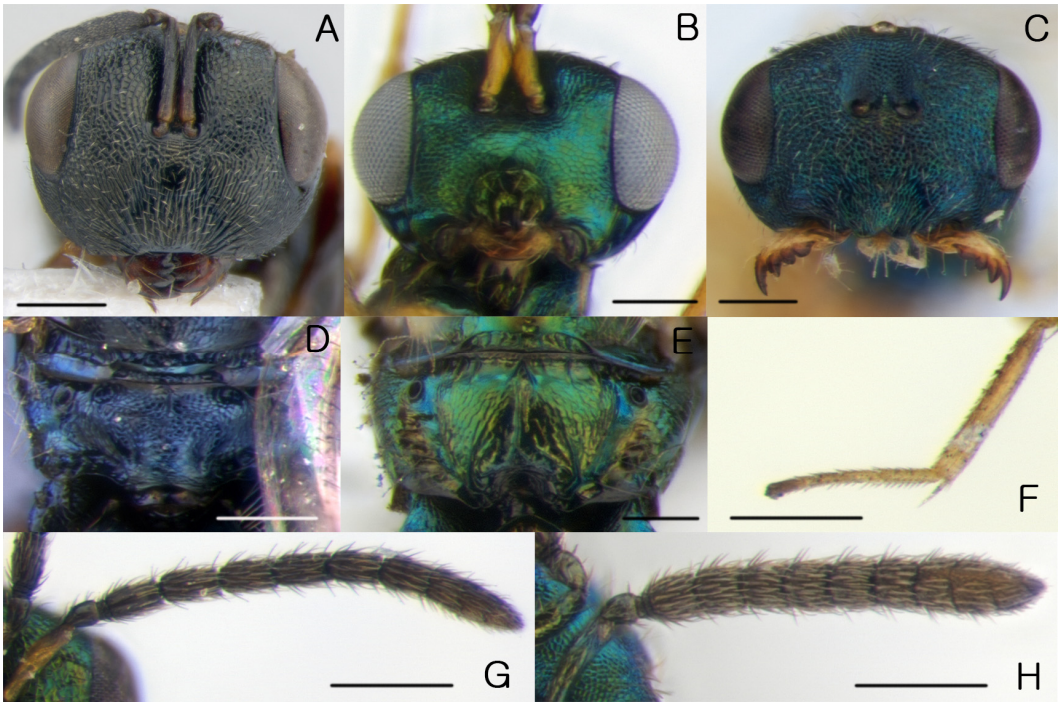

Fig. 1. Head in frontal view. (A) Pteromalinae, (B) Miscogastrinae, (C) *Mokrzeckia lazoensis*. Propodeum. (D) *Lariophagus obtusus*, (E) *Lamprotatus hikosanus*. Hind tibia. (F) *Lariophagus distinguendus*. Antenna. (G) *Stictomischus momoii*, (H) *Stictomischus scaposus*. Scale bars: 0.5 mm for all.

2. Head much wider than pronotum in dorsal view; gena with strong lamina in posterior part. Mesosoma high and compact. Mid coxae with transverse carina in anterior part. Gaster on distinct petiole. ····· *Paracarotomus* Ashmead
- Head less wider than pronotum in dorsal view; gena without strong lamina in posterior part. Mesosoma less high and compact. Mid coxae without transverse carina in anterior part. Gaster sessile, petiole transverse. ····· 3
3. Postmarginal vein only about as long as or even shorter than stigmal vein. Antenna clavate and stout, inserted below centre of face. - Eyes with distinctly pilosity. Marginal and postmarginal vein with thin bristles. Propodeum with coarse irregular reticulation in posterior part. ····· ····· *Diglochis* Forster
- Postmarginal vein longer than stigmal vein. Antennae not clavate and not stout, inserted above or in centre of face. Eyes without distinctly pilosity. ····· 4
4. Hind corners of propodeum prominent and sharp. Propodeum often with punctate nucha. Lower face swollen. Margin of first tergite produsedd. ····· *Lariophagus* Crawford
- Hind corners of propodeum not prominent and not sharp. Propodeum without nucha, it hind margin deep arcuately excised. Lower face not swollen. Margin of first tergite not produsedd. - Flagellar segment with two rows dense sensilla. Pronotum short and carinate. ····· *Mokrzeckia* Mokrzecki
5. Fore wing almost completely pilose, speculum reduced to narrow bare line along basal fold or to bare isolated oval area below parastigma or absent; stigma without bilobed lower margin. ····· *Stictomischus* Thomson
- Fore wing incompletely pilose, with large speculum, stigma with bilobed lower margin. ····· *Lamprotatus* Westwood

Family Pteromalidae Dalman, 1820 금좀벌과

Subfamily Pteromalinae Dalman, 1820 금좀벌아과

Genus *Diglochis* Förster, 1856 큰입금좀벌속(신칭)

Diglochis Förster, 1856: 65; TS: *Pteromalus complanatus* Ratzeburg, by monotypy.

Diagnosis. Eyes with long and conspicuous pilosity. Antennal strongly clavate. Outer marginal fringe on fore wing present. Propodeum posteriorly with coarse irregular alveolation. Gaster subcircular (Bouček, Rasplus, 1991).

1. *Diglochis sylvicola* (Walker, 1835) 등에살이큰입금좀벌(신칭) (Fig. 2A)

Pteromalus sylvicola Walker, 1835: 481; lectotype designated by Graham (1956: 260), female; TL: Sweden, Unknown; TD: BMNH.

Pteromalus complanatus Ratzeburg, 1844: 197; holotype, female; TL: Berlin, Germany; type lost. Possible synonym of *Anogmus vala* (Walker) by Graham, M.W.R. de V. (1969: 632); synonym of *Diglochis sylvicola* (Walker) by Graham, M.W.R. de V. (1969: 783)

Dirhicnus complanatus (Ratzeburg, 1844); new combination for *Pteromalus complanatus* Ratzeburg by Kurdjumov, N.V. (1913: 16)

Diglochis hybomitri Dzhanokmen, 1979: 248-251; holotype, female; TL: Tyumenskaya Oblast, Russia; TD: ZISP; synonym of *Diglochis sylvicola* (Walker) by Dzhanokmen, K.A. (2005: 51)

Material examined. [NAAS] South Korea: 1 female, GG, Ansan-si, Sihwaho Lake <Host: reed>, 3.VII.2001, H.C. Park.

Distribution. Western and Eastern Europe, Transcaucasus, Russia, Iran, Kazakhstan, South Korea, Japan.

Biology. The primary parasitoid of many species of Tabanidae (Diptera) (Stubbs, 1998: 76; Noyes, 2016), also reared from lepidopteran *Stilpnotia salicis* (Linnaeus) (Lymantriidae) (Noyes, 2016) and *Panolis flammea* (Denis, Schiffermülle) (Noctuidae) (Noyes, 2016).

Remarks. This species differs from all species of *Diglochis* Förster in having a dark metallic green body with coppery lustre, with yellowish-brown scape and legs (Dzhanokmen, 1978).

Genus *Lariophagus* Crawford, 1909 그물등자루금좀벌속(신칭)

Lariophagus Crawford, 1909: 52; TS: *Lariophagus texanus* Crawford, 1909, by monotypy.

Uriellomyia Girault, 1915: 319; TS: *Uriellomyia resoluta* Girault, 1915, original designation; Synonym of *Lariophagus* Crawford by Bouček, Z. (1988: 414)

Diagnosis. Propodeum with plicae remote from spiracles with a distinct, reticulate nucha. Most funicular segments quadrate or oblong. Lower face swollen; clypeal margin emarginate. Fore wing immaculate. Margin of first tergite produced (Bouček, Rasplus, 1991).

2. *Lariophagus distinguendus* (Förster, 1841) 바구미살이금좀벌 (Figs 1F, 2B)

Pteromalus distinguendus Förster, 1841: 17; syntype, male; TL: Unknown; TD: NHMV.

Pteromalus calamis Walker, 1849: 207; lectotype, male; TL: Madeira, Portugal; TD: BMNH; synonym of *Lariophagus distinguendus* (Förster) by Graham, M.W.R. de V. (1969: 824-825)

Pteromalus oryzinus Rondani, 1877: 195; TL: Italy; type lost; synonym of *Lariophagus distinguendus* (Förster) by Delucchi, V. (1955: 174)

Meraporus utibilis Tucker, 1910: 341-343; holotype, female;

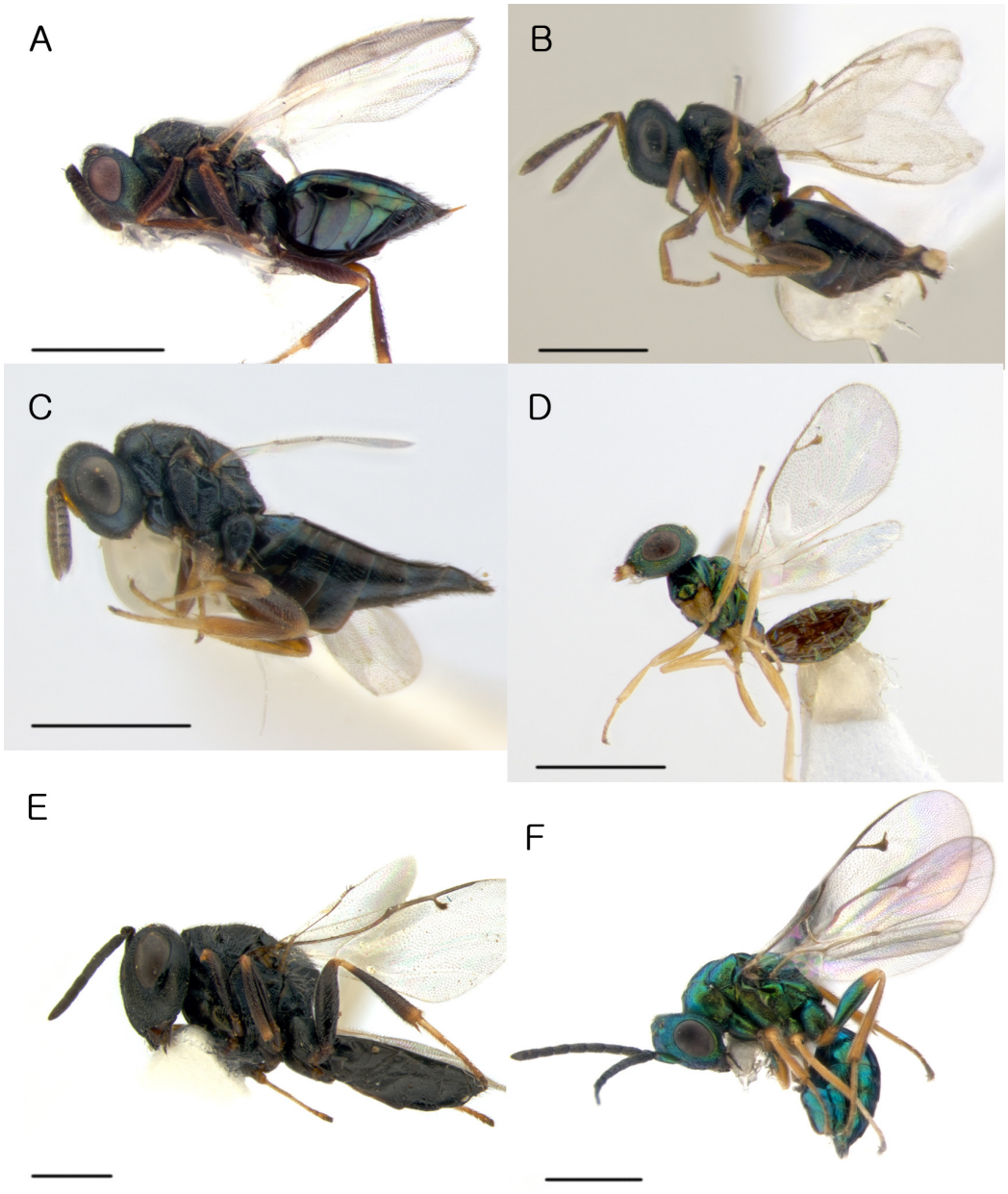

Fig. 2. Habitus in lateral view. (A) *Diglochis sylvicola*, (B) *Lariophagus distinguendus*, (C) *Lariophagus obtusus*, (D) *Mokrzeckia lazoensis*, (E) *Paracarotomus cephalotes*, (F) *Lamprotatus duplicatus*. Scale bars: 1 mm for all.

TL: Texas, United States of America; TD: USNM; synonym of *Lariophagus distinguendus* (Förster) by Gahan, A.B. (1921: 239)

Uriellomyia resoluta Girault, 1915: 319; syntypes, female; TL: Australia-Queensland; TD: QMB; synonym of *Lariophagus distinguendus* (Förster) by Bouček, Z. (1988: 415)

Nasonia miltoni Girault, 1929: 320; holotype, female; TL: South Australia; TD: SAMA; synonym of *Lariophagus distinguendus* (Förster) by Bouček, Z. (1988: 415)

Material examined. [NAAS] South Korea: 1 female, GW, Hongchon-gun, 10.IX.1993, J.Y. Chio.

Distribution. Western and Eastern Europe, North Africa, Russia, Turkey, Israel, Kazakhstan, China, Thailand, South Korea, Japan, India, Sri Lanka, North and South America, Australia, New Zealand.

Biology. The primary parasitoid of many insects of Anobiidae, Bostrychidae, Bruchidae, Curculionidae, Dryophthoridae, Ptinidae, Tenebrionidae (Coleoptera) and Cecidomyiidae (Diptera). Secondary parasitoid of hymenopterous insects of family Braconidae, Ichneumonidae and Pteromalidae (Noyes, 2016).

Remarks. This species differs from all species of *Lariophagus* in having a hind tibia with one spur, combined length of pedicel and flagellum longer than breadth of the head, eye height 1.5× larger than malar space, head in dorsal view 1.7-1.8× broader than length, apical margin of fore wing without cilia, marginal vein shorter than postmarginal vein (Kamijo, 1981).

3. *Lariophagus obtusus* Kamijo, 1981 그물등자루금좀벌(신칭) (Figs 1D, 2C)

Lariophagus obtusus Kamijo, 1981: 84-85; holotype, female; TL: Hokkaido, Japan; TD: EIHU.

Material examined. [NAAS] South Korea: 1 female, JN, Gwangju-si, 15.VI.1994, J.Y. Chio.

Distribution. Russian Far East, South Korea, Japan.

Biology. The primary parasitoid of *Ptinus japonicus* Reitter (Coleoptera, Ptinidae) (Kamijo, 1981; Noyes, 2016).

Remarks. This species is similar to *L. kuwayamai* (Kamijo), but differs in having the anterior margin of clypeus without fovea, POL less than 1.5× OOL, nucha occupying at most 0.4× the length of the propodeum, pronotal collar 0.2-0.3× as long as the mesoscutum (Kamijo, 1981).

Genus *Mokrzeckia* Mokrzecki, 1934 고치금좀벌속(신칭)

Mokrzeckia Mokrzecki, 1934: 143; TS: *Pteromalus pini* Hartig, 1838, by monotypy.

Beierina Delucchi, 1958: 271; TS: *Pteromalus pini* Hartig, 1838, original designation; synonym of *Mokrzeckia* Mokrzecki by Bouček, Z. (1961: 74)

Diagnosis. Fore wing with marginal vein 1.5 to 2.0 × as long as the stigmal vein. Anterior margin of clypeus with two curved lobes, between which there is a narrow incision. Propodeum with deeply arcuately excised hind margin, thin and narrowly upturned; median area reticulate. Each flagellar segment generally with two rows of dense sensilla. Hind tibia with two apical spurs (Bouček, Rasplus, 1991; Tselikh, 2012).

4. *Mokrzeckia lazoensis* Tselikh, 2012 태백고치금좀벌(신칭) (Figs 1C, 2D)

Mokrzeckia lazoensis Tselikh, 2012: 293, 295-296; holotype, female; TL: Primor'skiy Terr., Russia; TD: ZISP.

Material examined. [NAAS] South Korea: 1 female, GW, Mt. Taebaek, Temp. Yuil-sa, 20.VI-11.VII.1999, D.S. Gu.

Distribution. Russian Far East, South Korea.

Biology. Unknown.

Remarks. This species is similar to *M. orientalis* Subba Rao, but differs in that head is 1.3-1.4× as broad as mesoscutum, lower margin of clypeus is wider than its upper margin, scape 4.0-5.0 × as long as pedicel, pedicel 1.3-1.5 × as long as broad, metasoma green with golden reflections, distance between the lower margin of clypeus of male 3.1× larger than distance between toruli and median ocellus (Tselikh, 2012).

5. *Mokrzeckia pini* (Hartig, 1838) 고치금좀벌

Pteromalus pini Hartig, 1838: 253; lectotype, female; TL: Germany; TD: ZSMM.

Pteromalus halidayanus Ratzeburg, 1848: 207; type lost; TL: Germany; synonym of *Mokrzeckia pini* (Hartig) by Kurdjumov, N.V. (1913: 23); Graham, M.W.R. de V. (1969:

478-479); Tselikh, E.V. (2012: 292)

Mokrzeckia halidayana (Ratzeburg, 1848: 1-24); new combination for *Pteromalus halidayanus* Ratzeburg by Kurdjumov, N.V. (1913: 23)

Schizonotus pailloti Ferrière, Faure, 1925: 229; holotype, female; TL: France; TD: BMNH; synonym of *Beierina pini* (Hartig) by Delucchi, V. (1958: 271)

Mokrzeckia pini (Hartig); new combination for *Pteromalus pini* Hartig by Mokrzecki, A. (1934: 143); compared with *Mokrzeckia picta* Yang, Yao by Yang, Z.Q.; Yao, Y.X.; Cao, L.M. (2015: 47, 230)

Beierina pini (Hartig, 1838); new combination for *Pteromalus pini* Hartig by Delucchi, V. (1958: 271)

Material examined. Unexamined.

Korean records. South Pyongan **(**Kamijo, 1983: 302).

Distribution. North Korea**,** Japan.

Biology. Unknown.

Remarks. This species recorded from North Korea by Kamijo (1983), but unexamined from South Korea.

Genus *Paracarotomus* Ashmead, 1894 꽃등에살이금좀벌속(신칭)

Paracarotomus Ashmead, 1894: 335; *Paracaratomus cephalotes* Ashmead, by monotypy.

Stirogenium Dzhanokmen, 1984: 152; *Stirogenium asiaticum* Dzhanokmen, original designation and monotypy; synonym of *Paracarotomus* Ashmead by Dzhanokmen, K.A., Grissell, E.E. (2003: 536-537)

Diagnosis. Head very large; gena posteriorly with strong lamina. Mesosoma high and compact. Mid coxae in frontal part with horizontal shelf which is anteriorly delimited by cross-carina. Petiole slender and fully as long as the steep propodeum. Gaster high at base, compressed laterally behind middle (Bouček, Rasplus, 1991).

6. *Paracarotomus cephalotes* Ashmead, 1894 꽃등에살이금좀벌(신칭) (Figs 1A, 2E)

Paracarotomus cephalotes Ashmead, 1894: 336; holotype, male; TL: Morgantown, United States of America; TD: USNM.

Stirogenium asiaticum Dzhanokmen, 1984: 152-153; holotype, female; TL: Tselinograd Obl., Kazakhstan; TD: ZISP; synonym of *Paracarotomus cephalotes* Ashmead by Dzhanokmen, K.A., Grissell, E.E. (2003: 537)

Material examined. [NAAS] South Korea: 1 Male, JN, Gwangyang-si, Jinwol-myeon, Singu-ri, 26.V.2005, J.D. Yeo.

Distribution. Western and Eastern Europe, Transcaucasus, Russia, Iran, Kazakhstan, South Korea, India, Sri Lanka, South Africa, America, Australia.

Biology. The primary parasitoid of Syrphidae (Diptera) (Noyes, 2016).

Remarks. This species has a head in dorsal view about 2.4× broader than long, gena with strong lamina, propodeum at least 0.5× as long as scutellum, marginal vein 2.4-3.2× longer than stigmal vein and postmarginal vein about 2.0× longer than stigmal vein (Dzhanokmen, 1985).

Subfamily Miscogastrinae Walker, 1833 가시금좀벌아과 (신칭)

Genus *Lamprotatus*, Westwood, 1833 가시금좀벌속(신칭)

Lamprotatus Westwood, 1833: 121; TS: *Lamprotatus splendens* Westwood, by monotypy.

Skeloceras Delucchi, 1953: 216; TS: *Skeloceras seiunctum* Delucchi, original designation; subgenus *Lamprotatus* Westwood by Bouček, Z. (1991: 203)

Octofuniculus Liao, 1982: 358-359, 369; TS: *Octofuniculus chagyabensis* Liao, original designation and monotypy; synonym of *Skeloceras* Delucchi by Huang, Da-Wei (1990: 289)

Diagnosis. Frenal area of scutellum bearing coarse longitudinal rugae, shiny, only on sides sometimes with slight reticulation. Forewing with large speculum and basal cell bare; stigma with bilobed lower margin. Body length often 3-4 mm. Flagellum with 6-7 funicular segments and 2-3 segmented clava (Bouček, Rasplus, 1991).

7. *Lamprotatus cariniferum* (Kamijo, 1960) 가시금좀벌

Skeloceras cariniferum Kamijo, 1960: 40; holotype, female; TL: Hokkaido, Japan; TD: EIHU.

Material examined. Unexamined.

Korean records. Ryang-gang (Kamijo, 1983: 305).

Distribution. North Korea, Japan.

Biology. Unknown.

Remarks. This species has been recorded from North Korea by Kamijo (1983), but is unexamined from South Korea.

8. *Lamprotatus duplicatus* (Kamijo, 1960) 광택다리가시금좀벌 (신칭)(Figs 2F, 3D)

Skeloceras duplicatum Kamijo, 1960: 37; holotype, female; TL: Hokkaido, Japan; TD: EIHU.

Material examined. [NAAS] South Korea: 1 female, GW, MT. Taebaek, Temp. Yuil, 20.VI-11.VII.1999, D.S. Gu. [YNU] South Korea: 1 female, CB, Mt. Sobaek, Namchun, 18. VII.1994. W. Y. Chio; 1 female, CN, Buyeo-gun, Gyuam-myeon, 14-25.V.2005, J.W. Lee; 1 female, GB, Chilgok-gun, Dongmyeong-myeon, Hakmyeong-ri, Gasansanseong, N36° 02'11.74" E128°34'18.17", 9-22.V.2015, J.W. Lee; 1 female, GB, Cheongdo-gun, Gakbuk-myeon, Mt. Biseul, 24.V. -8.VI. 2015, J.W. Lee; 1 female, GN, Changnyeong-gun, Yueo-myeon, Daedae-ri, Upo Wetland, 3.VII.2015, Tselikh, G.H. Ko.

Distribution. Russian Far East, South Korea, Japan.

Biology. Unknown.

Remarks. This species is similar to *L. hikosanus* (Kamijo) and *L. cariniferum* (Kamijo), but differs from both species in having a bare costal cell of hind wing, subrectangular stigma of fore wing, a shorter antennal clava, subquadrate petiole and all femora metallic green (Kamijo, 1960).

9. *Lamprotatus hikosanus* (Kamijo, 1960) 비슬가시금좀벌 (신칭) (Figs 1E, 3A)

Skeloceras hikosanus Kamijo, 1960: 38; holotype, female; TL: Kyushu, Japan; TD: EIHU.

Material examined. [NAAS] South Korea: 1 female, GW, Chuncheon-si, Balsan 2-ri, <Host: Fine tree>, 8.X.1998, H.C. Park. [YNU] South Korea: 1 female, CN, Buyeo-gun, Gyuam-myeon, 14-25.V.2005, J.W. Lee; 1 female, GB, Cheongdo-gun, Gakbuk-myeon, Mt. Biseul, 10-24.V.2015, J.W. Lee; 3 female; GB, Chilgok-gun, Dongmyeong-myeon, Hakmyeong-ri, Gasansanseong, N36°02'11.74" E128°34'18.17", 9-22.V.2015, J.W. Lee; 1 female; GB, Gyeongsan-si, Daehak-ro 280, Yeungnam Univ., N 35°49'30" E 128°45'39", 4.V.2015, J.W. Lee; 1 female, JN, Jangseong-gun, Bukha-myeon, Sajabong, N 36°24'14.1" E126°52'12.9", 21.VI.2005, K.B. Kim.

Distribution. South Korea, Japan.

Biology. Unknown.

Remarks. This species is very similar to *L. cariniferum* (Kamijo), but it is very distinct differs from its by the transwerse petiole with sharp anterior margin, flagellum as long as mesosoma, a shorter first claval segment, irregular median carina of propodeum and metallic green fore femora (Kamijo, 1960).

Genus *Stictomischus* Thomson, 1876 큰무늬가시금좀벌속 (신칭)

Stictomischus Thomson, 1876: 278; TS: *Stictomischus scaposus* Thomson, by subsequent designation of Ashmead W.H. (1904: 278).

Diagnosis. Petiole of gaster reticulate, at most slightly transverse and usually as long as or longer than broad. Stigma of fore wing large or moderately large. Prepectus with vertical carina or, if rarely this indistinct then fore wing with isolated bare area below parastigma (Bouček, Rasplus, 1991).

10. *Stictomischus momoii* Kamijo, 1960 큰무늬가시금좀벌 (신칭) (Figs 1G, 3B, E)

Stictomischus momoii Kamijo, 1960: 32; holotype, female; TL: Hokkaido, Japan; TD: EIHU.

Material examined. [NAAS] South Korea: 1 female, GW, MT. Taebaek, Temp. Yuil, 20.VI-11.VII.1999, D.S. Gu.

Distribution. Russian Far East, South Korea, Japan.

Biology. Unknown.

Remarks. *Stictomischus momoii* Kamijo is similar to *S. japonicus* Kamijo, but differs from this species in having an antennal scape less elongated, numerous and irregularly sensillae of funicular segments, basal part of costal cell of fore wing with numerous hairs (Kamijo, 1960).

11. *Stictomischus scaposus* Thomson, 1876 굴파리살이가시금좀벌(신칭) (Figs 1H, 3C)

Stictomischus scaposus Thomson, 1876: 235; lectotype, female; TL: Smaland, Sweden; TD: LUZN.

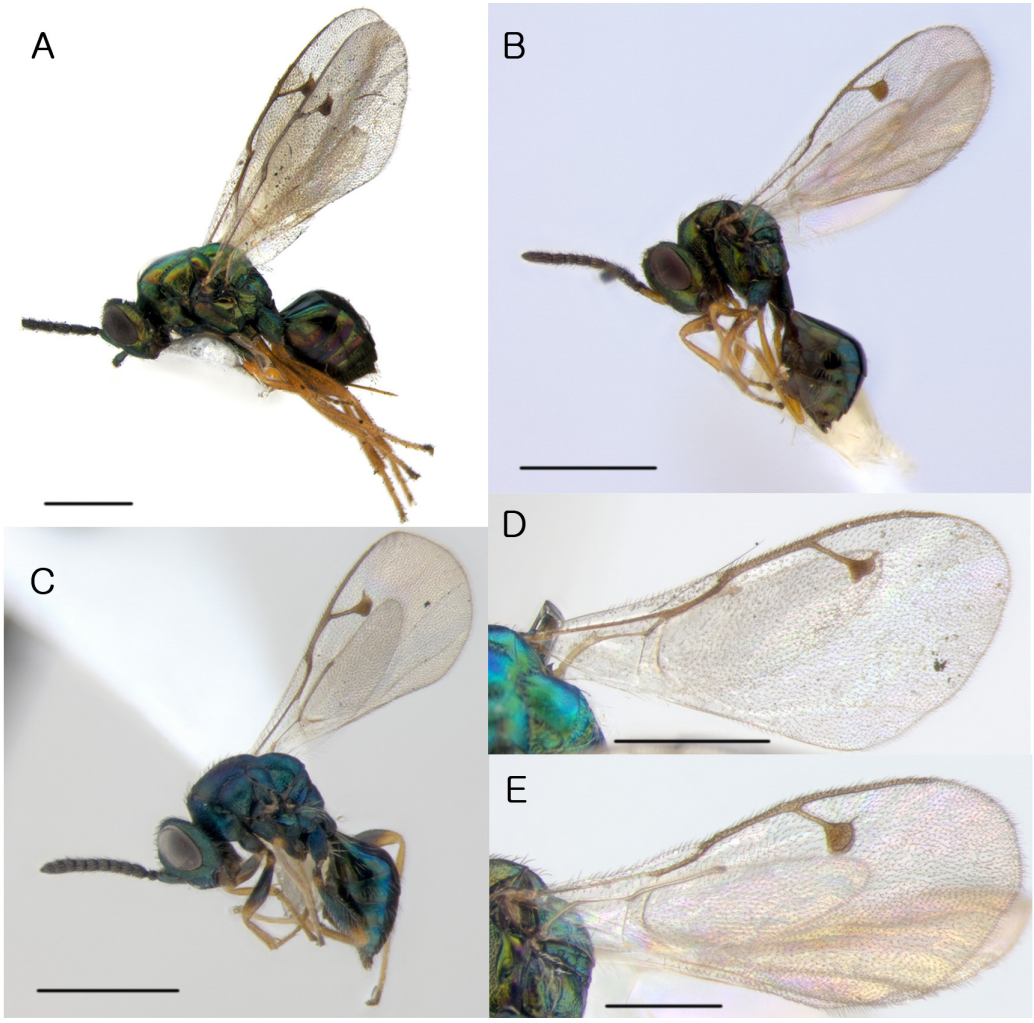

Fig. 3. Habitus in lateral view. (A) *Lamprotatus hikosanus*, (B) *Stictomischus momoii*, (C) *Stictomischus scaposus*. Fore wing. (D) *Lamprotatus duplicatus*, (E) *Stictomischus momoii*. Scale bars: 1 mm for all.

Material examined. [YNU] South Korea: 1 female, GB, Mungyeong-si, Gaeun-eup, Wanjang-ri, Mt. sogli, N 36°40'59", E 127°57'07", 21.V.-16.VI.2013, J. K. Choi.

Distribution. Western and Eastern Europe, South Korea.

Biology. Reared in England as a parasite of *Phytobia (=Dizygomyza) hilarella* (Zett.) (Diptera: Agromyzidae) (Noyes, 2016).

Remarks. This species is similar to *S. marginatus* Kamijo, but can be distinguished by the shape of the petiole and by the scape, which is much longer than the combined length of the first and second funicle segments (Kamijo, 1960).

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