

Male Genitalia of *Ischalia* (Coleoptera, Ischaliidae), with Notes on the Food of Adults

Hiroyuki YOSHITOMI

Ehime University Museum, Bunkyo 3, Matsuyama, 790–8577 Japan

Abstract Male genitalia of nine species of *Ischalia* were examined and described. The male genital structures provided very useful characters for recognition of species in the genus. Because many fungal spores were included in the mid-gut contents, it was clear that adults feed on both mycelium and spores. Specimens of *Ischalia* used in this study are preserved in Ehime University Museum, as noted in Appendix.

Introduction

The genus *Ischalia* is represented by 38 species from the Nearctic, Oriental and Palaearctic Regions (TELNOV, 2010; YOUNG, 2011). Most species are rare, and biological information is very limited. Most species were described from a single (25/38) or only female (11/38) specimens. Of these, 11 species have had male genitalia figured (PAULUS, 1971; YOUNG, 1976; SAITÔ, 1994; GUSAKOV & TELNOV, 2007; KAZANTSEV & YOUNG, 2011), but their descriptions were insufficient and fragmentary except for five species, *I. (I.) martensi* PAULUS, *I. (I.) nepalensis* PAULUS, *I. (I.) anhuiensis* KAZANTSEV et YOUNG, *I. (I.) lama* KAZANTSEV et YOUNG, and *I. (Eupleurida) aptera* GUSAKOV et TELNOV (PAULUS, 1971; GUSAKOV & TELNOV, 2007; KAZANTSEV & YOUNG, 2011).

The main aim of this study is to inspect the validity of male genitalia for recognition of species in this genus.

Materials and Methods

All specimens examined are preserved in the Ehime University Museum (EUMJ) as shown in the appendix; males of nine species were examined.

The abdominal segments were removed and placed in a 10% KOH solution for about 10 hours. Following clearing, I dissected and examined the male genitalia, after which the male genital organs were mounted on slides with Canada Balsam.

Photographs were taken under an Olympus BH-2 with the Canon EOS Kiss X2 super system (© Microscope Network). Figure 1 was arranged by Adobe Photoshop® CS4 ver. 11.0 using the tools of “invert” and “monochrome”.

Subgeneric and familial taxonomic concepts follow YOUNG (2011).

Results

Characteristics of male genitalia of the genus

Sternites V–VII (Figs. 2–10) closely covered with short/long setae, with/without lateral carinae; caudal margin of sternite VII concave/arcuate.

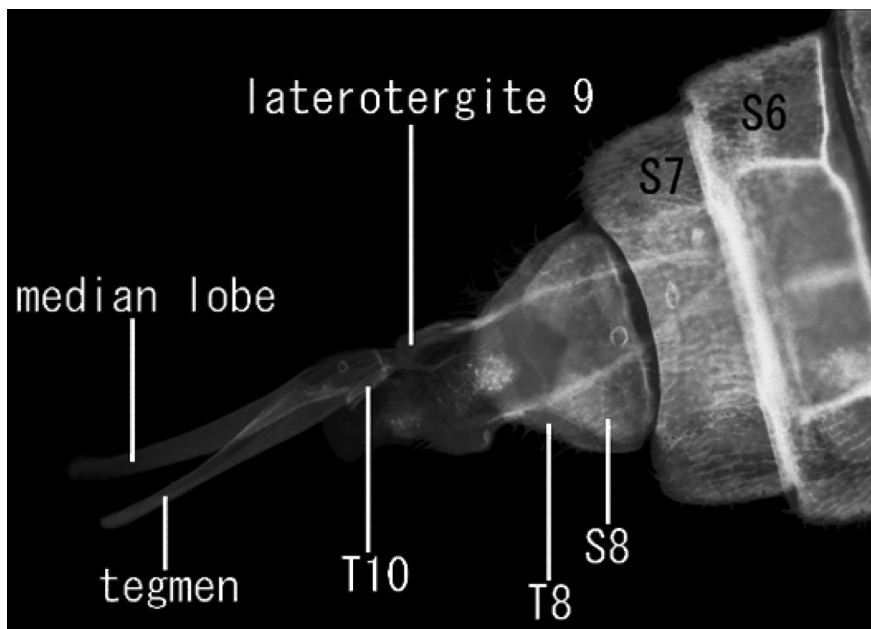


Fig. 1. Male genitalia of *Ischalia* (*Ischalia*) *indigacea*, showing the position of the parts. T=tergite; S= sternite.

Tergite VIII (Figs. 11–19: “pygidium” in GUSAKOV & TELNOV, 2007) well sclerotized, wide, semicircular, closely covered with short/long setae.

Sternite VIII (Figs. 20–28: “last visible sternite” in GUSAKOV & TELNOV, 2007) well sclerotized, trapezoidal/semicircular, closely covered with short/long setae, smaller than tergite VIII.

Laterotergite IX (Figs. 29–37: “spiculum gastrale” in GUSAKOV & TELNOV, 2007) well sclerotized, large, U-shaped, bearing long setae apically.

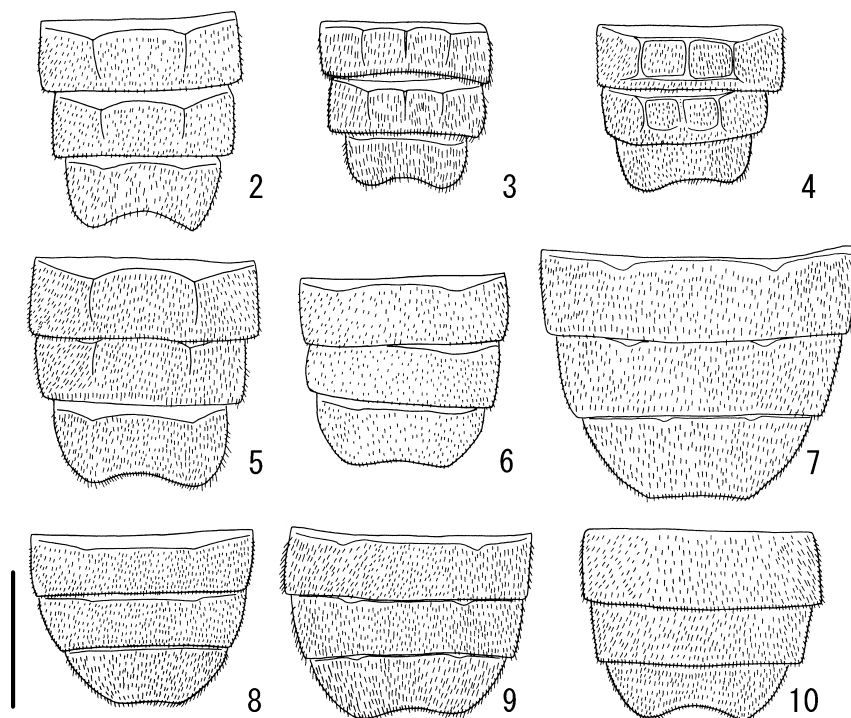
Tergite X (Figs. 39, 43, 47, 49, 51) small, slightly/weakly sclerotized, situated in the dorso-basal portion of the tegmen. This structure has been neglected by the previous authors (e.g. GUSAKOV & TELNOV, 2007), presumably because of its small size and slight/weak sclerotization. In the present paper, I failed to dissect and observe this structure in four of the species.

Aedeagus (Figs. 38, 40–42, 44–46, 48, 50, 52) symmetrical/slightly asymmetrical, well sclerotized, a little smaller than laterotergite IX. Tegmen with fused parameres, bearing long setae along lateral and distal margins; basal piece indistinct; median lobe rod-like, shorter/subequal length of tegmen.

Descriptions of the male genitalia

Ischalia (*Ischalia*) *aposana* M. SATÔ, 2002

Description. Sternites V–VI (Fig. 2) closely covered with short setae, with a pair of lateral carinae; sternite VII closely covered with short setae, deeply concave along caudal margin. Tergite VIII (Fig. 11) semicircular, anterior margin nearly straight, closely bearing long setae. Sternite VIII (Fig. 20) trapezoidal, concave along caudal margin, closely bearing long setae. Laterotergite IX (Fig. 29) trapezoidal basally, obtuse apically. Tergite X (Fig. 39) relatively



Figs. 2-10. Sternites V-VII of *Ischalia* spp. — 2, *I. (I.) aposana*; 3, *I. (I.) atricornis*; 4, *I. (I.) indigacea*; 5, *I. (I.) yasukii*; 6, *I. (I.)* sp.; 7, *I. (I.) latemarginata*; 8, *I. (I.) luteolineata*; 9, *I. (I.) patagiata*; 10, *I. (I.) tsuyukii*. Scale=1.0 mm.

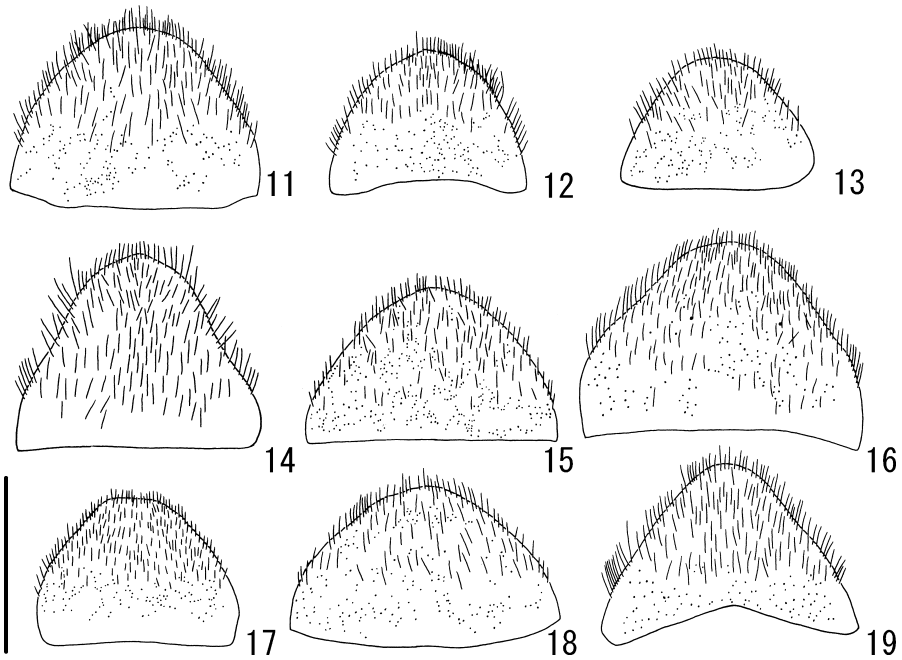
wide, pentagonal. Aedeagus (Fig. 38) relatively short; tegmen wide, anterior margin almost straight, subparallel-sided along basal 3/8, with short, wide fused parameres that are shallowly concave apically; median lobe about 0.81 times as long as tegmen, widened along mid-length, rounded apically.

Ischalia (Ischalia) atricornis PIC, 1838

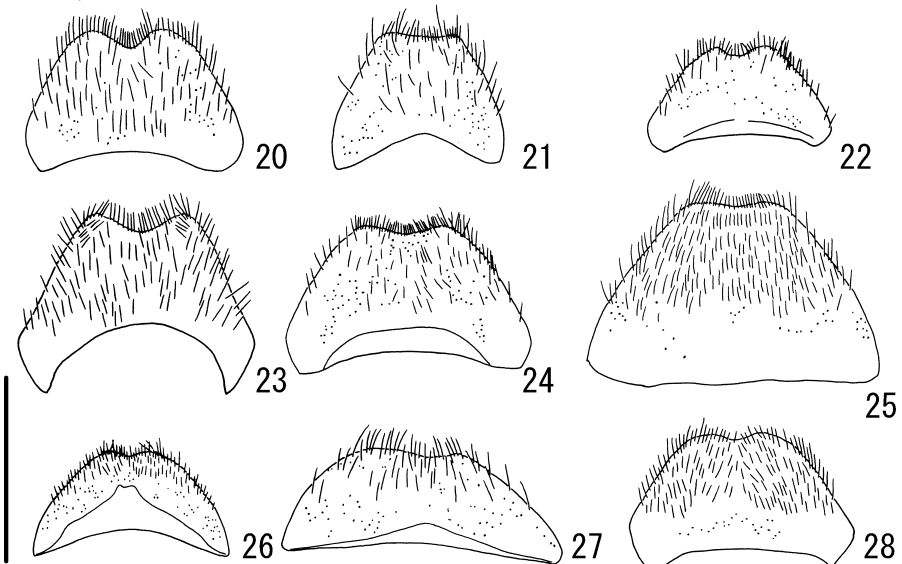
Description. Sternites V-VI (Fig. 3) closely covered with short setae, with lateral and median carinae; sternite VII closely covered with short setae, concave along caudal margin. Tergite VIII (Fig. 12) semicircular, anterior margin shallowly concave, closely bearing long setae. Sternite VIII (Fig. 21) trapezoidal, almost straight along caudal margin, closely bearing long setae. Laterotergite IX (Fig. 30, basally bifurcate) wide and rounded apically. Aedeagus (Fig. 40) wide and long; tegmen wide, basal margin gently arcuate, subparallel-sided along basal 1/2, with fused parameres wide and short, apex deeply concave; median lobe about 0.69 times as long as tegmen, punctuate and rounded apically.

Ischalia (Ischalia) indigacea PASCOE, 1860

Description. Sternites V-VI (Fig. 4) closely covered with short setae, with lateral and median carinae; sternite VII closely covered with short setae, shallowly concave along caudal margin. Tergite VIII (Fig. 13) semicircular, anterior margin almost straight, closely bearing short setae. Sternite VIII (Fig. 22) trapezoidal, shallowly concave along caudal margin, bearing short setae.



Figs. 11–19. Tergite VIII of *Ischalia* spp. — 11, *I. (I.) aposana*; 12, *I. (I.) atricornis*; 13, *I. (I.) indigacea*; 14, *I. (I.) yasukii*; 15, *I. (I.)* sp.; 16, *I. (I.) latemarginata*; 17, *I. (I.) luteolineata*; 18, *I. (I.) patagiata*; 19, *I. (I.) tsuyukii*. Scale=0.5 mm.



Figs. 20–28. Sternite VIII of *Ischalia* spp. — 20, *I. (I.) aposana*; 21, *I. (I.) atricornis*; 22, *I. (I.) indigacea*; 23, *I. (I.) yasukii*; 24, *I. (I.)* sp.; 25, *I. (I.) latemarginata*; 26, *I. (I.) luteolineata*; 27, *I. (I.) patagiata*; 28, *I. (I.) tsuyukii*. Scale=0.5 mm.

Laterotergite IX (Fig. 31) rod-like basally, rather pointed apically. Tergite X (Fig. 43) cordate. Aedeagus (Fig. 41) long; tegmen slender, basal margin arcuate, evenly tapered posteriorly, fused parameres slender and long, rounded apically (shallowly concave in some specimens as Fig. 42); median lobe about 0.79 times as long as tegmen, slightly tapered apically, punctuate and rounded apically.

***Ischalia (Ischalia) yasukii* M. SATÔ, 2002**

Description. Sternites V–VI (Fig. 5) closely covered with short setae, with a pair of lateral carinae; sternite VII closely covered with short setae, concave along caudal margin. Tergite VIII (Fig. 14) semitriangular, anterior margin almost straight, closely bearing long setae. Sternite VIII (Fig. 23) trapezoidal, basal and caudal margins deeply concave, closely bearing long setae. Laterotergite IX (Fig. 32) large, rounded apically, tapered basally. Aedeagus (Fig. 44) long; tegmen relatively wide, arcuate along basal margin, subparallel-sided along basal 1/2, fused parameres relatively wide with rounded apex; median lobe about 0.87 times as long as tegmen, tapered apically, punctuate and rounded apically.

***Ischalia (Ischalia)* sp. (probably *sasajii* or *chinensis*)**

Description. Sternites V–VI (Fig. 6) closely covered with short setae, without carinae; sternite VII closely covered with short setae, almost straight along caudal margin. Tergite VIII (Fig. 15) semitriangular, anterior margin almost straight, closely bearing long setae. Sternite VIII (Fig. 24) trapezoidal, basal and caudal margins shallowly concave, closely bearing long setae. Laterotergite IX (Fig. 33) large, rounded apically, tapered basally. Aedeagus (Fig. 45) long; tegmen relatively wide, gently arcuate along basal margin, subparallel-sided along basal 1/2, with fused parameres relatively wide, apex rounded; median lobe about 0.85 times as long as tegmen, punctuate and rather pointed apically.

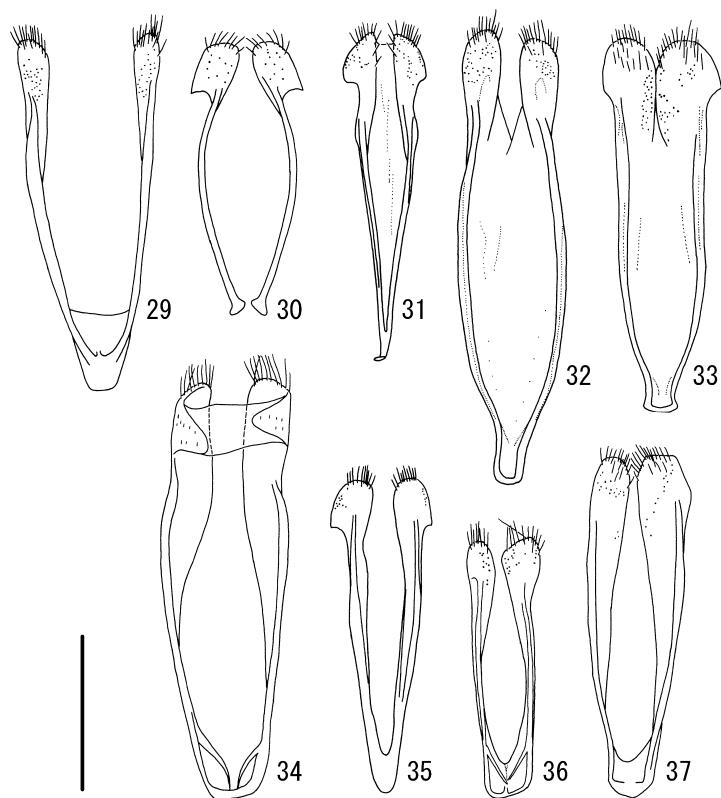
***Ischalia (Ischalia) latemarginata* OHBAYASHI et TOYAMA, 1994**

Description. Sternites V–VI (Fig. 7) closely covered with short setae, without carinae; sternite VII closely covered with short setae, caudal margin almost straight. Tergite VIII (Fig. 16) semitriangular, anterior margin almost straight, closely bearing long setae. Sternite VIII (Fig. 25) trapezoidal, basal and caudal margins straight, closely bearing long setae. Laterotergite IX (Fig. 34) large, rounded apically, subquadrate basally. Tergite X (Fig. 47) relatively wide, oval. Aedeagus (Fig. 46) wide and short; tegmen wide, basal margin arcuate, with fused parameres wide and short, apex rounded; median lobe about 0.74 times as long as tegmen, punctuate and rounded apically.

***Ischalia (Ischalia) luteolineata* PIC, 1912**

Description. Sternites V–VI (Fig. 8) closely covered with short setae, without carinae; sternite VII closely covered with short setae, caudal margin almost straight. Tergite VIII (Fig. 17) semicircular, anterior margin nearly straight, closely bearing long setae. Sternite VIII (Fig. 26) transversely trapezoidal, basal margin concave, minutely excised along caudal margin, closely bearing short setae. Laterotergite IX (Fig. 35) rounded apically, V-shaped basally. Tergite X (Fig. 49) small, oblong. Aedeagus (Fig. 48) long; tegmen elongate, basal margin arcuate, with fused parameres long and subparallel-sided, apex deeply concave; median lobe long, about 0.96 times as long as tegmen, subparallel-sided, punctuate and rounded apically.

Remarks. The parameres of this species were figured by SAITÔ (1994). This species is



Figs. 29–37. Laterotergite IX of *Ischalia* spp. in ventral view. — 29, *I. (I.) aposana*; 30, *I. (I.) atricornis*; 31, *I. (I.) indigacea*; 32, *I. (I.) yasukii*; 33, *I. (I.)* sp.; 34, *I. (I.) latemarginata*; 35, *I. (I.) luteolineata*; 36, *I. (I.) patagiata*; 37, *I. (I.) tsuyukii*. Scale=0.5 mm.

somewhat similar to the following species in the general appearance, but is easily distinguishable from the latter by the shape of aedeagus.

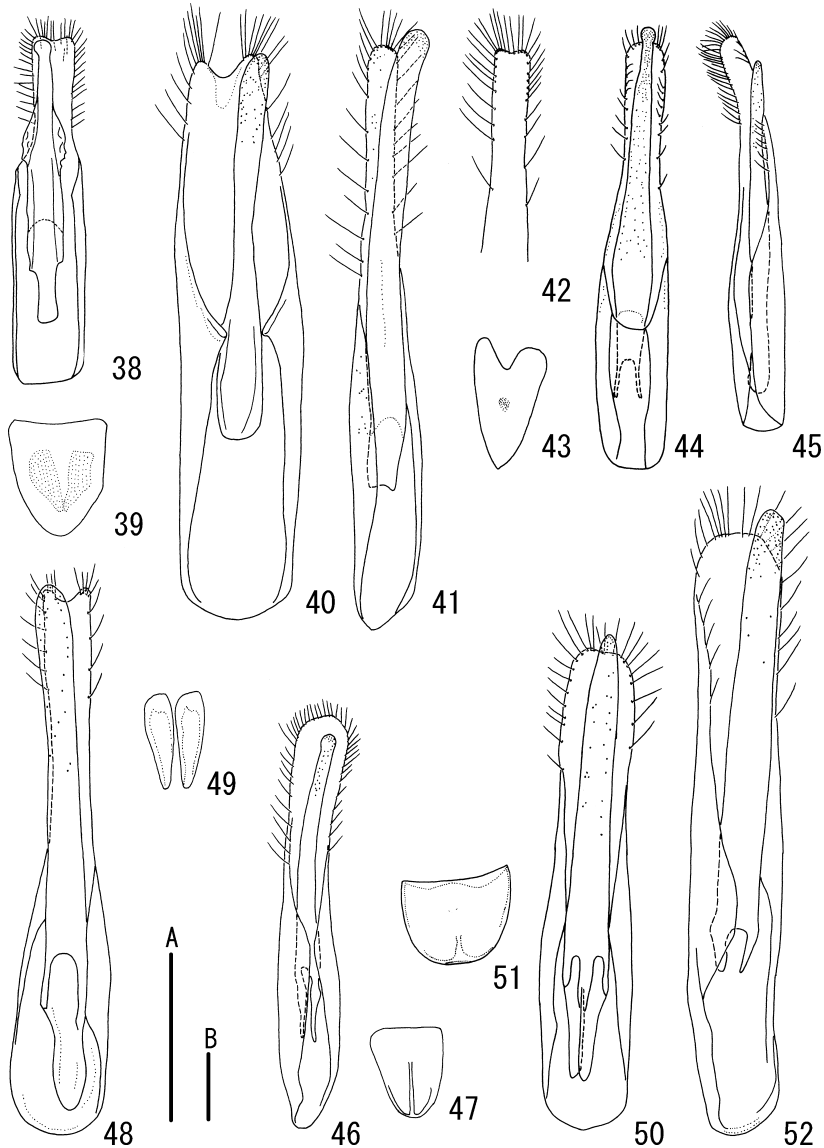
***Ischalia (Ischalia) patagiata* LEWIS, 1887**

Description. Sternites V–VI (Fig. 9) closely covered with short setae, without carinae; sternite VII closely covered with short setae, caudal margin shallowly concave. Tergite VIII (Fig. 18) semicircular, anterior margin gently arcuate, closely bearing long setae. Sternite VIII (Fig. 27) transversely trapezoidal, basal and caudal margins shallowly concave, closely bearing short setae. Laterotergite IX (Fig. 36) rounded apically, subquadrate basally. Tergite X (Fig. 51) large, semicircular. Aedeagus (Fig. 50) wide; tegmen wide, basal margin gently arcuate, subparallel-sided, with fused parameres wide and short, apex rounded; median lobe long, about 0.93 times as long as tegmen, gently tapered apically, punctuate and rather pointed.

Remarks. SAITÔ (1994) noted that the parameres of this species were shallowly emarginate apically, but in the specimens I examined the apex is rounded.

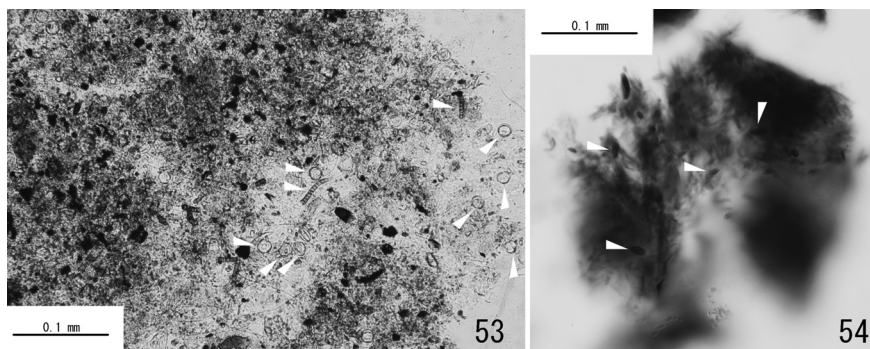
***Ischalia (Ischalia) tsuyukii* OHBAYASHI et TOYAMA, 1994**

Description. Sternites V–VI (Fig. 10) closely covered with short setae, without carinae;



Figs. 38–52. Aedeagus in ventral view (38, 40–42, 44–46, 48, 50, 52) and tergite X (39, 43, 47, 49, 51) of *Ischalia* spp. — 38–39, *I. (I.) aposana*; 40, *I. (I.) atricornis*; 41–43, *I. (I.) indigacea*; 44, *I. (I.) yasukii*; 45, *I. (I.)* sp.; 46–47, *I. (I.) latemarginata*; 48–49, *I. (I.) luteolineata*; 50–51, *I. (I.) patagiata*; 52, *I. (I.) tsuyukii*. Scale A = 0.5 mm for 38, 39, 44–47; scale B = 0.1 mm for 40–43, 48–52.

sternite VII closely covered with short setae, concave along caudal margin. Tergite VIII (Fig. 19) semitriangular, anterior margin concave, closely bearing long setae. Sternite VIII (Fig. 28) trapezoidal, basal and caudal margins shallowly concave, closely bearing short setae. Laterotergite IX (Fig. 37) rounded apically, gently tapered basally. Aedeagus (Fig. 52) wide and long; tegmen wide, basal margin arcuate, subparallel-sided, with fused parameres wide and short, apex rounded; median lobe about 0.77 times as long as tegmen, slightly tapered apically, punctate and



Figs. 53–54. Mid-gut contents of *Ischalia* spp. — 53, *I. (I.) patagiata*; 54, *I. (I.) yasukii*.

rounded apically.

Notes on the food of the adult

During the process of preparing and observing the male genitalia, I examined the mid-gut contents. The material consisted largely of a kind of tissue (probably fungal mycelium), but many fungal spores were also included in some specimens (Figs. 53, 54).

Discussion

Judging from the comparison of the nine species, it is clear that the male genital structures provide useful characters for distinguishing the species of *Ischalia*; the characters may also prove useful in phylogenetic analyses. Particularly the shapes of sternite VIII, laterotergite IX, tergite X and aedeagus are taxonomically important.

The genus *Ischalia* is subdivided into three subgenera (YOUNG, 2011), but the definition of subgenera has been somewhat unsettled. As to the species treated herein, GUSAKOV and TELNOV (2007) treated the first five species in the subgenus *Ischalia* and the remaining four species in the subgenus *Eupleurida*. But YOUNG (2011) pointed out their definition of the subgenus *Eupleurida* was problematic and treated all these species in the subgenus *Ischalia*. In the present paper, I follow the subgeneric definitions by YOUNG (2011). Thus, the exact definition of subgenera awaits future studies.

The adults of some species have been reported to feed on fungal mycelium (YOUNG, 1985; OKUDA, 1992). By the examination of the mid-gut contents, it is now clear that adults feed on fungal spores.

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要 約

吉富博之：ヘリハネムシの雄交尾器，および成虫の食性について。——ヘリハネムシ属の種は，一般的に珍しく，生態的知見も限られている。その雄交尾器は，これまでに11種が記載・図示されてきたが，どれも断片的なもので，種間差等の分類学的有用性について議論されてこなかった。そこで愛媛大学ミュージアムに保管されているヘリハネムシ属の標本を用いて9種の雄交尾器の比較検討を行った。その結果，雄交尾器には明らかな種間差がみられ，特に第8腹板，第9側背板，第10背板，挿入器の形状は分類学的に重要であることが判った。また，雄交尾器の解剖を行う際に腸内内容物を調べた。これまで YOUNG (1985) や OKUDA (1992) は菌糸体を食えると報告しており，腸内内容物のほとんどは菌糸体と考えられる組織であった。しかしいくつかの標本においては多くの孢子も含まれており，成虫が孢子も食することが明らかとなった。

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- 2011. A new Asian subgenus and species of *Ischalia* (Coleoptera: Ischaliidae) with an assessment of subgeneric concepts, revised world checklist, and keys to the subgenera and “blue elytra” species. *Zootaxa, Auckland*, **2811**: 53–58.

Appendix

A List of *Ischalia* Specimens Preserved in EUMJ

The male genitalia figured and examined in this paper are noted with asterisk (*).

Ischalia (Ischalia) aposana SATÔ, 2002

Specimens. Holotype (EUMJ holotype no. 1183): 1 female, “Mt. Apo Mindanao Philippines 1–VI–1978 K. SUGINO”, “Holotype *Ischalia* (s. str.) *aposana* M. SATÔ, nov. Det. M. SATÔ, 2002”. Paratypes: 1 male*, “Mt. Apo Mindanao Philippines 1–VI–1978 K. SUGINO”, “Paratype *Ischalia*

(s. str.) *aposana* M. SATÔ, nov. Det. M. SATÔ, 2002”; 1 female, “(PHILIPPINES) Agko, Mt. Apo Alt. 1,000 m Island Mindanao 4-X-1978 S. NAGAI leg.”, “Paratype *Ischalia* (s. str.) *aposana* M. SATÔ, nov. Det. M. SATÔ, 2002”.

Ischalia (Ischalia) atricornis PIC, 1938

Specimen. 1 male*, “INDON.: W-Kalimantan Nanga Sarawai env. Tontang, 24. 7.-2. 8. leg. SCHNEIDER 1993”.

Remarks. This specimen was misidentified as *Ischalia* (s. str.) *indigacea* by SATÔ (2002). This species has been recorded from Malaysia (West Malaysia) and the Philippines (Mindanao) (GUSAKOV & TELNOV, 2007); this is the first record of this species from Indonesia (Kalimantan).

Ischalia (Ischalia) caerulea TELNOV, 2007

Specimen. 1 female, “Ulu Gombak Kuala Lumpur Malaysia 28-VIII-1987 M. SATÔ leg.”.

Remarks. This species was described from Khao Chong botanical garden, Trang Prov., Thailand. This is the first record of this species from Malaysia.

Based on the above specimen, SATÔ (1992) reported *Ischalia indigacea* PASCOE from the Malay Peninsula for the first time. After the close examination, this specimen is not *I. indigacea* but *I. caerulea*.

Ischalia (Ischalia) indigacea PASCOE, 1860

Specimens. 1 male, “Lojing trail 3, Gua Musang, Kelantan, W. Malaysia 9-VI-2008 H. TAKIZAWA leg.”; 1 ex., ditto, but 8-VI-2008; 1 ex., “Lojing, Gua Musang, Kelantan, W. Malaysia 10-VI-2008 H. TAKIZAWA leg.”; 1 ex., “SARAWAK : MALAYSIA near Lambir N. P., Miri 20-II-1995 M. KAWANABE leg.”; 1 male*, “Lanjak Entimau, Wildlife Sanct., Kapit, Sarawak 19-VI-2008 H. TAKIZAWA leg.”; 1 female, ditto, but 20-VI-2008; 7 exs., “Hydro Power Stat., Bario, Kelambit, highland, Sarawak 5-IX-2007 H. TAKIZAWA leg.”; 1 ex., “Menyaring, Lanjak Entimau wildlife San-ct., Kapit, Sarawak 24-VI-2008 H. TAKIZAWA leg.”; 2 exs., “Kinabalu Park, HQ Ranau, Sabah, BORNEO 23~25-VII-2008 H. TAKIZAWA leg.”; 1 ex., ditto, but 27-IX-2007; 1 ex., ditto, but 19~20-VIII-2008; 1 female, “Poring Park Ranau, Sabah, Borneo, Malaysia 21~22-I-2008 H. TAKIZAWA leg.”; 2 exs., ditto, but 29~30-IX-2007; 1 ex., ditto, but 9~10-I-2009; 1 male, ditto, but 4~5-IV-2008; 2 exs., ditto, but 21-I-2008; 1 female, “Kg. Sanagang, Keningau, Sabah, Borneo, Malaysia 6-X-2007 H. TAKIZAWA leg.”; 2 males*, “Ulu Kimanis, 35 km point, Papar, Sabah, Borneo, Malaysia 17~20-VII-2008 H. TAKIZAWA leg.”.

Ischalia (Ischalia) yasukii SATÔ, 2002

Specimens. Holotype (EUMJ holotype no. 1187): 1 female, “Mt. Apo Mindanao I. Philippines 26~30-iii-1980 T. HIROWATARI & Y. FUNATSU”, “Holotype *Ischalia* (s. str.) *yasukii* M. SATÔ, nov. Det. M. SATÔ, 2002”. 1 male*, “[MINDANAO] Eagle Centre, 1,100 m Baracatan north slope of Mt. Apo 5-VIII-1985 M. SAKAI”.

Ischalia (Ischalia) sp. (probably *sasajii* or *chinensis*)

Specimens. 1 male*, “[LAOS] Mt. Phou Pan Ban Saleui, Xam Neua Houa Phan Prov. 27-IV~11-V-2007 J. YAMASAKO leg.”; 1 female, “N. MYAMMAR Zan Phut S. Kumon Range Kachin State 28-V-2000”.

***Ischalia (Ischalia) arisana* KÔNO, 1935**

Specimen. 1 female, "Taiwan, Taichung Mt. Shuehshan, 3,650 m, 1-VII-1989 M. SATÔ leg."

***Ischalia (Ischalia) latemarginata* OHBAYASHI et TÔYAMA, 1994**

Specimens. Holotype (EUMJ holotype no. 954): 1 male*, "S. IMASAKA Meifeng Formosa 18-IV-1975", "HOLOTYPE *Ischalia (Pseudohomalisis) latemarginata* N. OHBAYASHI et TÔYAMA, 1994". Paratype: 1 female, "(MEIFENG) Nantou-Hsien, FORMOSA May 11th, 1968 Coll. Y. WATANABE", "Paratype *Ischalia latemarginata* N. OHBAYASHI et TÔYAMA Det. M. SATÔ, 1994".

***Ischalia (Ischalia) luteolineata* PIC, 1912**

Specimens. 1 ex., "Mt. Kumotori Okutama, Tokyo 11-VI-1983 N. OHBAYASHI"; 1 male* & 2 exs., "Hirakura Mie Pref. 23-IX-1996 H. ICHIHASHI"; 1 male, "Mt. Omogosan Ehime, Jpn. 27-V-1970 K. ITÔ leg."; 1 ex., "Tsuchigoya Mt. Ishizuchi 21-VI-1997 N. OHBAYASHI leg."

Remarks. In the listing for this species and its distribution, GUSAKOV and TELNOV (2007) reported it from Japan (Honshu, Kyushu, Shikoku) without specimen data. However, no formal record of this species from Shikoku has been known (SAITÔ, 1994; NAKAMURA, 2009). Dr. TELNOV (per. comm.) said he examined a specimen of this species collected from Shikoku.

***Ischalia (Ischalia) patagiata* LEWIS, 1879**

Specimens. 1 female, "Amagi-toge Izu, 21-VII-1977 J. OKUMA leg."; 1 female, "Uradani Aichi Pref. 15-VII-1968 H. YAMADA leg."; 1 female, "Hirohata-cho Toyota-shi Aichi Pref. 7-III-1994 H. YOSHITOMI leg."; 1 female & 3 exs., "(SHIKOKU) Fujinouchi Matsuyama City 23-VI-1977 M. SAKAI leg."; 1 male, "EHIME, JPN, Komenono Matsuyama City 9-VII-1995 S. YOSHIMICHI leg."; 1 ex., "EHIME: JAPAN Teppoishikawa Omogomura 12-VI-1998 H. URUSHIHARA leg."; 1 ex., "SHIKOKU Mt. Sara VII-16-1954 K. SASAKI leg."; 1 ex., "SHIKOKU Mt. Sara VII-10-1955 Y. WAKE leg."; 1 ex., "SHIKOKU Mt. Omogo VII-27-1955 S. UEDA leg."; 1 male*, "EHIME: JAPAN Mt. Onigajyo Uwajima City 2-VI-2001 A. KITAHARA leg."; 1 female, "(SHIKOKU) Nuno Tosashimizu 12-VII-1987 Y. UTSUNOMIYA".

***Ischalia (Ischalia) takane* SAITÔ, 1994**

Specimens. 1 female, "Marunuma Gunma Pref. Jul 31. 1958 S. Hisamatsu"; 2 females, "Mt. Hakusan 24-2,600 m Gifu Pref. 18-VIII-1989 M. HASEGAWA".

***Ischalia (Ischalia) tsuyukii* OHBAYASHI et TÔYAMA, 1994**

Specimen. Holotype (EUMJ holotype no. 955): 1 male*, "Doi Pui Chiang Mai THAILAND 4-V-1980 S. TSUYUKI leg.", "HOLOTYPE *Ischalia (Pseudohomalisis) tsuyukii* N. OHBAYASHI et TÔYAMA, 1994".

***Ischalia (Ischalia) uenoi* SATÔ, 1990**

Specimen. Paratype: 1 female, "Mt. Ho-huan-tung-feng 3,100 m alt. Taiwan Hua-lien Hsien 25-VI-1989, S. UÊNO", "Paratype *Ischalia* [!] *uenoi* M. SATÔ Det. M. SATÔ, 1990".