Revision of the genus *Microterys* Thomson (Hymenoptera: Encyrtidae) of China

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Key words: Hymenoptera; Encyrtidae; *Microterys*; parasitoids; scale insects, China; key.
The species of *Microterys* Thomson from China are revised. Forty-three species are described and illustrated, of which 17 are new to science. Seventeen new species are described and illustrated, 26 species of the genus are revised and redescribed. The hosts of 33 species of the genus *Microterys* are recorded. A key to all known species of Chinese *Microterys* is added.

Introduction

The species of the genus *Microterys* are parasitoids of miscellaneous scale insects, which are often important pest on various fruit trees, ornamental trees, forest trees and other economic important trees. The members of the genus are potential important biological control agents and some species of *Microterys* are already successfully applied in the biological control of economic important scale insects.

The cosmopolitan genus *Microterys* is a large genus of the family Encyrtidae Walker, 1837, which was recognised by Foerster (1856: 34 as *Sceptrophorus*) and established by Thomson (1876: 155). Up to now the number of species of the genus has increased to about 150 species (Rosen, 1976; Noyes & Hayat, 1984).

The genus in China has got comparatively little attention. Peng (1960) reported *M. speciosus* Ishii and *M. flavus* (Howard); the Chinese Academy of Science (CAS) & Zhejiang Agricultural University (ZAU) (1978) listed *M. ericeri* Ishii; Huang (1989) and Jiang (1982) described two new species: *M. ditaeniatus* Huang, and *M. sinicus* Jiang, respectively; Xu (1985), Xu et al. (1991) and Li et al. (1987) reported *M. clauseni* Compere, *M. kuwanai* Ishii and *M. rufofulvus* Ishii, respectively; Shi et al. (1992a, 1992b) reported *M. chalcostomus* Dalman and described a new species: *M. didesmococci* Shi, Si & Wang; Tang & Zheng (1992) described the new species *M. yunnanensis* Tang & Zheng; Xu & Shi (1999) described a new species: *M. hunanensis* Xu & Shi; Xu (in Yaling) (2000) and Xu & Chen (2000) described six new species of *Microterys*. In total 24 species of the genus *Microterys* have been reported from China though some of the species are apparently misidentified.

In the last 20 years, many institutions, universities, agro-technology and forestry technology extension stations have collected many specimens of *Microterys*. In addition to the specimens kept by the former Zhejiang Agricultural University, altogether a collection of more than 2000 specimens of *Microterys* from all over China, which enables a revision of the Chinese species. In this paper, 43 species of *Microterys* are presented, two are newly recorded from China, 17 species are described as new species. All specimens are deposited in Applied Entomology Institute of Zhejiang

University (formerly, Department of Plant Protection, Zhejiang Agricultural University) unless otherwise stated.

Measurements

Body: length of dry specimens measured in dorsal view from fore margin of frontovetex to hind margin of last tergite. Surface of frontovetex, mesoscutum and scutellum smooth, punctate or reticulate punctate.

Head: three ocelli forming a triangle, the top angle acute (< 60°, very rarely 60-90°), obtuse (> 90°), right (= 90°). OCL: Ocellar-occipital line; OOL: Ocellar-ocular line; POL: Postocellar line.

Mesosoma: maximum length of mesosoma including propodeum.

Metasoma: maximum length measured from the third to last abdominal tergites, petiole not included. In *Microterys* petiole is inconspicuously developed.

Ovipositor: the overall length of ovipositor includes shaft plus ovipositor sheath.

The value of all the scale-lines in the figures is 0.2 mm unless otherwise indicated.

Abbreviations

BMNH = The Natural History Museum, London, U.K.
CESUCR = Citrus Experiment Station, University California, Riverside, U.S.A.
HenAU = Henan Agricultural University, China
IAES = Imperial Agricultural Experiment Station, Japan
IZCAS = Institute of Zoology, Chinese Academy of Sciences, Beijing, China
RMNH = Nationaal Natuurhistorisch Museum, Leiden, The Netherlands
NSIPQS = Nagasaki Substation of Imperial Plant Quarantine Station, Japan
SzchU = Szechuan University, China
USNM = National Museum of Natural History, Smithsonian Institution, U.S.A.
ZIShNU = Zoology Institute, Shaanxi Normal University, China
ZJU = Applied Entomology Institute, Zhejiang University, China

Biology of *Microterys* species

1. Overwintering and generations
   According to Jiang (1984), *Microterys ericeri* has 6-7 generations each year in E'mei, Szichuan. The adults occur from April to November, and are abundant in August-September. The larvae overwinter in *Ericerus pela* after November, and pupate from mid to end of March next year, the adults emerge, mate and oviposite in April, the generations are continuous and difficult to separate.
2. Host feeding, mating and longevity of adults
   Adults of *Microterys ericeri* are very active: crawling, jumping and searching for hosts after emergence. Before egg-laying females frequently pierce and bore dorsally in the host scales with the ovipositor. They turn to suck the body juice of the host scale while the male is waiting aside, the male steps on and mates for 1-2 seconds, and leaves. Fertilized females produce a female filial generation, unfertilized females produce a male filial generation. The longevity of adult males ranges from 3 to 14 days, and of females 27 to 32 days.

3. Oviposition
   Females of *Microterys ericeri* carry 6-30 eggs, and tend to select the second instar or older host scales to lay eggs. They often repeatedly parasitize host scales without the ability of recognizing host scales parasitized by other individuals of the same species. Only one progeny can successfully develope in the second instar host scale, however, five progenies can successfully develope in an adult host scale.
   In California, U.S.A. (Timberlake, 1913), 6-7 progenies of *Microterys nietneri* successfully developed in one host scale. One female of *M. nietneri* at most laid 212 eggs, usually 98-125. The eggs hatched 70 hours after laying in summer.
4. Development of larvae and pupae
   The life span of *Microterys ericeri* lasts 40-45 days in June-July, the larvae have five instars. The first instar larvae are "tailed", the body is elongate, 9-14 segmented, with a forked tail, and respiratory spiracles. The second instar and older larvae are worm-like and similarly structured, sometimes they are wrapped up in a shell which is linked with the tracheal system of the host. The pupation is often inside the body of the host, where the developed larvae also overwinter.
5. Competition and natural enemies
   Microterys species has to compete with other Encyrtidae and Aphelinidae for common hosts. *Microterys nietneri* is inferior when it has to compete for hosts with *Aphycus* species (Timberlake, 1913); it perished altogether when it had to compete with *Coccophagus lunalatus* for hosts.
   Microterys species could be hyperparasitized by *Cheiloneurus* species (Encyrtidae), *Marietta* species (Aphelinidae) and *Pachyneurum* species (Pteromalidae) (Xu et al., 1991a, b).
6. Host range
   Microterys species can parasitize many kinds of insect pests of Homoptera, mainly Coccidae, Pseudococcidae, Asterolecaniidae, Lecaniodiaspididae, Kermococcidae, Eriococcide, Margarodidae, Lacciferidae and Psyllidae. The nymphs and adults of hosts can be attacked by *Microterys* species. Jiang (1982) reported that *Microterys sinicus* Jiang, 1982, attacked also the eggs of its host.

Microterys Thomson, 1876

Sceptrophorus Foerster, 1856: 34. Type-species: *Encyrtus sceptriger* Foerster, 1856, by designation of Ashmead (1900: 381) [Suppressed in favour of *Microterys* Thomson, 1876: Opinion 1110 (1978), Opinions Decl. Int. Comm. zool. Nomencl. 35: 99-100].

Microterys Thomson, 1876: 155. Type-species: *Encyrtus sylvius* Dalman, 1820, by designation of Ashmead, 1900.

Apentelicus Fullaway, 1913: 26. Type-species: *Apentelicus kotinskyi* Fullaway, 1913.

Characteristics.— Female: body length 0.8-2.8 mm (ovipositor excluded), usually yellowish brown, reddish brown, sometimes blackish brown, or with metal green reflections. Antenna with funicle various coloured, apical segments usually yellowish white, clava black. Fore wing with 2-3 infuscate bands, when with two bands, then inner band sometimes connected with outer band, forming two hyaline patches; when with three bands, then middle band sometimes connected with outer band medially. A few of species have fore wing apically or entirely hyaline.

Head.— In dorsal view 4-7 times as wide as width of frontovetex; ocelli forming an acute or equilateral triangle; frontovetex forming an angle with face; occipital margin acute. Head in frontal view a little wider than high; the upper level of toruli is below the lowest level of eyes. Toruli separated from each other by more than their maximum diameter. Antenna with scape 2-5 times as long as wide, pedicel usually longer than the first funicular segment, clava 3 segmented and about as long as the fourth–sixth funicular segments combined. Maxillary palpi with 4 segments, labial palp with 3 segments. The mandible has 2 teeth and 1 truncate protuberance.
Mesosoma: mesoscutum and scutellum flat or slightly convex, slightly sculptured and with setae. Without parapsidal lines.

Fore wing.— 2.2-3.0 times as long as wide; stigmal vein is usually slightly longer than marginal and postmarginal veins; basal triangle with long setae, except for marginal vein with 1-2 transverse hyaline bands, weakly pubescent, apical hyaline band sometimes interrupted, infuscate part uniformly pubescent.

Metasoma.— Oval or rounded, ovipositor slightly or distinctly exserted.

Male.— Generally blackish brown with metallic reflections, antenna light coloured, flagellum uniformly coloured, fore wing hyaline. Frontovetex usually wide, ocelli froming an obtuse triangle. Antenna located rather high on head, the upper level of toruli usually above the lowest level of eyes, antenna 9 segmented, pedicel spherical, all funicular segments longer than wide, the setae on funicular segments shorter than the longest funicular segments, hardly curved, clava not segmented, about as long as the fifth-sixth funicular segments combined. Metasoma smaller and pointed than of female.

Key to Chinese species of Genus *Microterys* Thomson (females)

1. Outer side of marginal vein of fore wing uniformly infuscate ..... ***M. unicoloris*** Xu
- Outer side of marginal vein of fore wing with hyaline transverse band 2
2. Fore wing mostly infuscate, apical margin hyaline (fig. 61) 3
- Outer side of marginal vein of fore wing with 1-2 hyaline transverse bands, apical margin infuscate 7
3. Outer side of marginal vein of fore wing with 2 hyaline transverse bands, one of them apically situated ..... ***M. ditaeniatus*** Huang
- Fore wing mostly infuscate but apically hyaline 4
4. Fore wing degenerated and shorted, not reaching apex of metasoma (fig. 46) ..... ***M. tenuifasciatus*** spec. nov.
- Fore wing reaching further than apex of metasoma 5
5. Fore wing with basal triangle hyaline (fig. 58). ..... ***M. tranusideltus*** spec. nov.
- Fore wing with basal triangle infuscate 6
6. Scape 1.9 times as long as wide, metasoma as long as mesosoma, exserted ovipositor 0.2 times as long as metasoma ..... ***M. tranusimarginis*** spec. nov.
- Scape 2.3 times as long as wide, metasoma shorter than mesosoma, ovipositor slightly exserted, less than 0.2 times metasoma ..... ***M. ovaliscapus*** spec. nov.
7. Fore wing with 2 transverse infuscate bands, sometimes inner band touching outer band at middle, resulting in a hyaline patch on fore and hind margins, respectively (figs. 7, 15) 8

- Fore wing with 3 transverse infuscate bands, middle band narrower and interrupted; outer band sometimes touching inner band (fig. 29) 21
8. Fore wing with 2 transverse infuscate bands touching medially (fig. 7) 9
- Fore wing with 2 transverse infuscate bands not tocuhing medially (fig. 15) 11
9. Metasoma much longer than mid tibia, antennal scape 2.3 times as long as wide ..... ***M. crescocci*** spec. nov.
- Metasoma shorter than mid tibia, antennal scape 2.8 times as long as wide 10
10. Scape expanded midly, clava as long as fourth-sixth funicular segments combined, hind tibia with 2 blackish spots ..... ***M. metaceronemae*** Xu
- Scape expanded apically, clava as long as fifth-sixth funicular segments combined, hind tibia yellow ..... ***M. flavitibiaris*** Xu
11. Fore wing with its infuscate inner band expanded up to 0.75 of wing subapically (fig. 23) ..... ***M. lii*** spec. nov.
- Fore wing with its infuscate inner band expanded up to at most 0.6 of wing subapically 12
12. Fifth funicular segment white, other funicular segments dark (fig. 52), ocelli forming a right triangle. ..... ***M. tianchiensis*** spec. nov.
- Fifth-sixth or fourth-sixth funicular segments white to yellowish white 13
13. Fourth-sixth funicular segments white to yellowish white 14
- Fifth-sixth funicular segments white to yellowish white 15
14. Mesosoma, metasoma and ovipositor of equal length, antennal scape 3.0 times as long as wide ..... ***M. drosichaphagus*** spec. nov.
- Metasoma longer than mesosoma, ovipositor longer than metasoma, antennal scape 3.2 times as long as wide ..... ***M. choui*** Xu
15. Metasoma longer than mesosoma 16
- Metasoma not longer than mesosoma 19
16. Basal 0.6 of scape black, apical 0.4 white (fig. 63) ..... ***M. varicoloris*** spec. nov.
- Scape uniformly coloured 17
17. Clava as long as fourth-sixth funicular segments combined ..... ***M. gansuensis*** spec. nov.
- Clava longer than fourth-sixth funicular segments combined 18
18. First-third funicular segments blackish brown, fourth funicular segment yellowish brown, fifth-sixth funicular segments white, clava as long as third-sixth funicle segments combined ..... ***M. sinicus*** Jiang
- First-fourth funicular segments blackish brown, fifth-sixth funicular segments white, clava as long as fourth-sixth plus half of third funicular segments combined ..... ***M. shaanxiensis*** spec. nov.
19. Mesonotum dorsally blackish brown, metasoma cordate ..... ***M. didesmococci*** Shi
- Mesonotum dorsally metallic green, metasoma oval 20
20. Mesonotum dorso-medially mostly metallic green, laterally yellowish brown, metasoma about as long as mesosoma ..... ***M. clauseni*** Compere
- Mesonotum dorsally completely metallic green, metasoma oval, shorter than mesosoma ..... ***M. chalcostomus*** (Dalman)
21. Sixth funicular segment black 22
- Sixth funicular segment white 23
22. Fifth funicular segment white, sixth funicular segment partly black ..... ***M. hei*** Xu

- Fourth-fifth funicular segment white, sixth funicular segment wholly black ..... ***M. jiamusiensis*** spec. nov.
23. Fifth funicular segment basally blackish, apically white .... ***M. anyangensis*** spec. nov.
- Fifth funicular segment completely white 24
24. Fourth funicular segment at least partly blackish brown 25
- Fourth funicular segment completely white 27
25. Fourth funicular segment ventrally blackish brown, dorsally mostly and fifth-sixth funicular segment white 26
- Fourth funicular segment completely blackish brown, only fifth-sixth funicular segment white 34
26. Gonostylus as long as width of outer plate of ovipositor ..... ***M. breviventris*** Xu
- Gonostylus longer than width of outer plate of ovipositor ..... ***M. pseudocrescocci*** spec. nov.
27. Exserted ovipositor at least 0.5 times length of metasoma (fig. 34) 28
- Exserted ovipositor shorter than 0.3 times length of metasoma 29
28. Scape 3.5 times as long as wide, pedicel as long as half first funicular segment, third funicular segment dark brown apically ..... ***M. yunnanensis*** Tang
- Scape 3.0 times as long as wide, pedicel 0.7 times as long as first funicular segment, third funicular segment apically white ..... ***M. psoraleococci*** spec. nov.
29. Pedicel shorter than first funicular segment ..... ***M. speciosus*** Ishii
- Pedicel longer than first funicular segment 30
30. Exserted ovipositor shorter than 0.13 times length of metasoma ..... ***M. postmarginis*** Xu
- Exserted ovipositor 0.20-0.25 times as long as metasoma 31
31. Outer infuscate band of fore wing clearly connected with middle infuscate band, middle band not interrupted ..... ***M. nietneri*** (Motschulsky)
- Outer infuscate band of fore wing not connected with middle band, middle band interrupted 32
32. Frontovetex narrow, head 7.0 times as wide as frontovetex ... ***M. pseudonietneri*** Xu
- Frontovetex broad, head 6.0 times as wide as frontovetex, or less 33
33. Body yellowish brown, pedicel and upper margin of first-third funicular segments blackish, metasoma longer than mesosoma ..... ***M. tenuifrons*** spec. nov.
- Body dark brown, pedicel, first-third funicular segments completely blackish, metasoma shorter than mesosoma ..... ***M. nuticaudatus*** Xu
34. Pedicel as long as first funicular segment, first-fourth funicular segments yellowish brown, but upper margin blackish ..... ***M. zhaoi*** Xu
- Pedicel longer than first funicular segment; colour of, first-fourth funicular segments variable 35
35. Body yellowish brown to reddish brown, at most metasoma dark brown 36
- Body dark brown to blackish brown, only sometimes head yellowish brown 9
36. Head 5.0-6.0 times as wide as frontovetex 37
- Head width less than 5.0 times width of frontovetex 38
37. Metasoma yellowish to red brown ..... ***M. rufofulvus*** Ishii
- Metasoma blackish brown ..... ***M. kuwanai*** Ishii
38. Pedicel 4.2 times as long as wide, metasoma as long as mesosoma, ovipositor shorter than metasoma, slightly exserted ..... ***M. liaoi*** Xu

- Pedicel 3.3 times as long as wide, metasoma shorter than mesosoma, ovipositor longer than mesosoma, exserted part as long as 0.2 times metasoma ..... ***M. hunanensis*** Xu & Shi

39. Ocelli forming an acute triangle of < 60º 40
- Ocelli forming an equilateral triangle of 60º 41

40. Pedicel 2.6 times as long as wide, parasitoid of Lecaniospididae ..... ***M. skotasmos*** spec. nov.
- Pedicel 3.0-4.0 times as long as wide, parasitoid of *Chloropulvinaria auranti* ..... ***M. ishiii*** Tachikawa

41. Metasoma rounded, scape 4.0 times as long as wide ..... ***M. okitsuensis*** Compere
- Metasoma triangular, scape 3.1-3.5 times as long as wide 42

42. Body large, 2.3 mm, fore wing with submarginal vein 5.8 times as long as stigmal vein, metasoma as long as mid tibia, ovipositor shorter than mesosoma ..... ***M. ericeri*** Ishii
- Body small, 0.9 mm, fore wing with submarginal vein 4.5 times as long as stigmal vein, metasoma much longer than mid tibia, ovipositor longer than mesosoma ..... ***M. longiclavatus*** Xu

Descriptions

Microterys anyangensis spec. nov.
(figs. 1-4)

Material.— Holotype (ZJU), ♂, China: Henan: Anyang, 36º0'N, 114º18'E, reared, 1980, Xianfa Wang, ex *Ceroplastes japonicus*, C8113-2. Paratypes: 3 ♂♂ + 4 ♀♀ (of which 1 ♂ + 1 ♀ in RMNH), same data.

Female, length of body 1.3 mm.

Head.— Antenna: scape ventrally slightly expanded, 3.8 times as long as maximum width, pedicel 1.9 times as long as wide at apex, 1.4 times as long as first funicular segment; first funicular segment 1.8 times as long as wide, second-sixth funicular segments shortened and widened gradually, sixth funicular segments 0.7 times as long as wide; clava as long as fourth-sixth plus half third funicular segments combined, clearly wider than sixth funicular segment. Head in dorsal view 2.1 times as wide as long, 4.0 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 1.0, 1.0 and 0.2 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.3 times POL; head in frontal view 1. 2 times as wide as high, toruli separated from each other by 1.5 times their maiximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.7 times maximum diameter of torulus; maxillary palp with oblique truncate apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum and scutellum flat, scutellum with 38 setae.

Wings.— Fore wing 2.5 times as long as wide; submarginal vein with 17 setae, submarginal, marginal and postmarginal veins 5.8, 0.9 and 0.8 times as long as stigmal vein respectively; basal triangle with long setae, except marginal vein both transverse hyaline bands weakly pubescent, apical hyaline band seems interrupted, other parts uniformly pubescent.

Legs.— Spurs of mid tibia as long as basitarsus.

Metasoma.— Oval, pointed apically, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 121, metasoma 106, ovipositor 115, gonostylus 27, and width of outer plate of ovipositor 21.

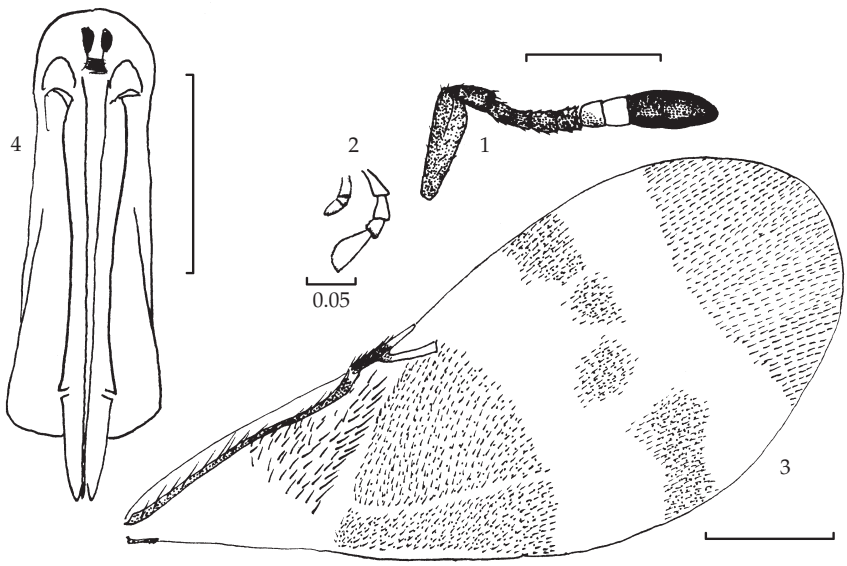
Colour.— Yellowish brown; fifth partially, and complete sixth funicular segment yellowish white; head, fore and mid legs yellowish brown; pedicel, first-fourth funicular segment, fifth funicular segment mostly, oral margin laterally, fourth segment of maxillary palp, hind femur, tibiae except apical part, and tarsi apically blackish brown; clava black; fore wing with 3 transverse infuscate bands, inner band not clearly separated from outer band.

Male.— Unknown.

Host.— *Ceroplastes japonicus* Green, 1921 (Coccidae).

Distribution.— Henan (Anyang).

Diagnosis.— The new species is similar to *Microterys melanostomatus* Trjapitzin, 1964, in body colour, colour pattern of fore wing and having metasoma shorter than mesosoma, but can be distinguished from the latter by the following combination of characters: (1) frontovetex 1.9 times as long as wide, (frontovetex 2.6-3.0 times as long as wide in *M. melanostomatus*); (2) ocelli forming an equilateral triangle (ocelli forming a strongly acute triangle); (3) the fifth funicular segment partly blackish (fifth funicular segment completely white).



Figs. 1-4, *Microterys anyangensis* spec. nov. 1, antenna; 2, maxillary and labial palpi; 3, fore wing; 4, ovipositor.

Microterys breviventris Xu, 2000

Microterys breviventris Xu (in Xu, Sheng & Xu), 2000: 263.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Songyang, 28º24'N, 119º24'E, reared, ix.1983, Hanlin Chen, ex *Cerococcus muratae*, C9222-1. Paratype, 1♂ (RMNH), same data.

Female, length of body 1.3 mm.

Head.— Antenna: scape ventrally slightly expanded, 3.6 times as long as maximum width, pedicel 2.0 times as long as wide at apex, 1.4 times as long as first funicular segment; first funicular segment 1.8 times as long as wide, second-sixth funicular segments equal in length and widened apically, sixth funicular segments 0.8 times as long as wide; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, slightly oblique truncated apically. Head in dorsal view 1.8 times as wide as long, 4.5 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 1.5 and 0.2 times as long as diameter of anterior ocellus, respectively, anterior ocellus separated from posterior ocellus by 1.2 times POL; head in frontal view 1. 1 times as wide as high, toruli separated from each other by 0.8 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.8 times maximum diameter of torulus; maxillary palp with pointed apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum flat; scutellum convex, with 38 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 18 setae, submarginal, marginal and postmarginal veins 5.0, 1.0 and 0.8 times as long as stigmal vein respectively; basal triangle with sparse, coarse setae, except marginal vein both transverse hyaline bands weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 9 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Triangular, pointed apically, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 116, metasoma 81, ovipositor 105, gonostylus 21, and width of outer plate of ovipositor 21.

Colour.— Dark brown; fourth mostly and fifth-sixth funicular segments yellowish white; pedicel, first-third, fourth ventrally funicular segments, oral margin laterally and apical tarsi yellowish brown; clava black; basal triangle of fore wing hyaline, distally with 3 transverse infuscate bands, middle band clearly separated from outer band.

Male.— Unknown.

Host.— *Cerococcus muratae* (Kuwana, 1907).

Distribution.— Zhejiang (Songyang).

Microterys chalcostomus (Dalman, 1820)

Encyrtus chalcostomus Dalman, 1820: 341; Mercet, 1921: 397.
Microterys chalcostomus Thomson, 1876: 159; Shi et al., 1992a: 350.

Material.— Type series in BMNH; 1♂, HenAU, China: Liaoning, v.1989, reared, Xinping Hu & Sizhu Li, ex *Kermes quercus* on *Quercus* spec., B07-40, B07-41.

Female, body length about 2 mm.

Head.— Antennal scape slightly expanded, longer than basal four funicular segments combined, pedicel longer than first funicular segment, first to fourth funicular segments clearly longer than wide, the fifth close to square, the sixth square, clava cylindrical and thicker than funicle with apex truncate and as long as apical 3 funicular segments combined. Frontovetex narrow, 3 times as wide as the diameter of ocellus at front ocellus, eye large, nearly rounded and nude, slightly convergent to clypeus; face wide and flat.

Mesosoma.— Mesoscutum and scutellum large smoothly convex.

Wings.— Fore wing Large, with short fringe, marginal, stigmal and postmarginal veins about equal in length, hind wing wide, pubescent, hardly so in costal cell, with short fringe.

Legs.— Long and thick, fore and hind femora slightly short, mid tarsi rather thick, spur of mid tibia and basal tarsus nearly equal in length, basal tarsus nearly as long as the other 4 tarsal segments combined; hind tarsus as long as the second and third tarsal segments combined.

Metasoma.— As wide as and shorter than mesosoma, oval; ovipositor slightly exserted.

Colour.— Face yellowish brown, eyes light gray, ocelli red, antennal clava black; mesoscutum axillae and scutellum aeruginous and greenish blue with metallic reflections, metanotum black with blue reflections; mesopleura blackish brown with metallic green reflections. Basally fore wing hyaline, the other parts of fore wing dark, with a hyaline band under stigmal vein. Legs blackish brown, with apically tibiae yellowish brown, joints between femora and tibiae brownish, tarsi reddish brown, last segments of tarsus black. Metasoma blue and purple with first tergite golden green; frontovetex, apical funicular segments, pronotum except fore margin, mesopleura, basal tegulae yellowish; a spot between ocelli, antennal scape and pedicel, basal segments of funicle, fore margin of pronotum, and apex of tegula brown.

Host.— "*Kermes quercus*" = *Kermes nigronotatus* Hu, 1986.

Distribution.— Liaoning; Spain, former Soviet Union.

Microterys choui Xu, 2000

Microterys lunatus; Dang et al., 1990: 152; Zhao et al., 1995: 185 (not Dalman, 1820).
Microterys choui Xu (in Xu, Sheng & Xu), 2000: 269.

Material.— Holotype (ZJU), ♂, China: Shanxi, Taigu, 37°24′N, 112°30′E, iii.1994, reared, Fangde Tang, ex *Eulecanium gigantea* on *Zyzyphus jujuba*, C9401-4. Paratypes: 3 ♂♂ (1 ♂ in RMNH), same data, C9404-4; 1 ♂, China: Henan, Xuchang, 34°′N, 113°48′E, 20.v.1982, reared, Guang Xu, ex *Eulecanium kunoensis* on *Pyrus bretschneideri*, same data, 8206-1.

Female, length of body 2.2 mm.

Head.— Antennal scape ventrally slightly expanded, 3.2 times as long as maximum width, pedicel 2.2 times as long as wide at apex, 1.7 times as long as first funicular segment; first funicular segment 1.6 times as long as wide, all funicular segments shortened and widened apically, sixth funicular segment 0. 6 times as long as wide; clava slightly longer than fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, truncate apically. Head in dorsal view 2.0 times as wide

as long, 4.3 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 2.0, 1.5 and 0.5 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by length of POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 2.0 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.7 times maximum diameterof torulus; maxillary palp obliquely truncate apically, labial palp rounded apically.

Mesosoma.— Mesoscutum and scutellum convex, the latter with 58 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 19 setae, submarginal, marginal and postmarginal veins 6.0, 1.0 and 0.7 times as long as stigmal vein, respectively; basal triangle with dense coarse setae, both hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Spurs of mid tibia as long as basitarsus.

Metasoma.— Elongate oval, rounded apically, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 133, metasoma 154, ovipositor 174, gonostylus 39, and width of outer plate of ovipositor 29.

Colour.— Blackish brown with metallic reflections, fourth-sixth funicular segments, and hind margin of pronotum yellowish white; antennal scape, pedicel, first-second funicular segments, tegulae, legs except tarsi apically and hind coxae yellowish brown; clava, oral margins laterally, and occipital surroundings blackish; basal triangle of fore wing hyaline, outer side wit 2 transverse infuscate bands, inner band clearly separated from outer band, outer band with yellow reflections.

Male.— Unknown.

Host.— *Eulecanium gigantea* Shinji, 1935, on *Robinia pseudoacacia* Linnaeus, *Sophora japonica* Linnaeus and *Ulmus* spec., *Eulecanium kunoensis* (Kuwana, 1907).

Distribution.— Shanxi (Taigu), Henan (Xuchang), Shaanxi, Ningxia.

Microterys clauseni Compere, 1926

Microterys clauseni Compere, 1926: 35; Xu 1985: 412; Zhejiang Agricultural University, 1987: 498; Li et al., 1987: 301; Sheng, 1989: 83; Dang et al., 1990: 152, part; Guo et al., 1991: 41; Shi et al., 1992b: 16; Xu, 1992: 1287; Shi et al., 1994: 53.

Material.— Type series: 15 ♂♂ + 8 ♀♀ (CESUCR), Japan: Yokohama, 3.v.1922, Clausen, ex. *Ceroplastes floridensis*; 1 ♂, China: Jiangsu: Nanjing, 20.v.1976, reared, Yin Zhang, ex *Ceroplastes japonicus* Green on *Gossampinus malabaria*, C7708-1; 1 ♂, same data; 20 ♂♂ + 3 ♀♀, China: Zhejiang: Hangzhou, 1973-1985, reared, Li & Zhihong Xu, Yin Qian, ex *Ceroplastes japonicus* Green on *Platanus orientalis*, *Sapindus mukorossi*, *Euonymus japonica*, *Poncirus trifoliate*, C8504-1, C8505-1, C7305-1, C7306-2, C7308-1, C8214-2; 1♂+1♀(RMNH), same data; 4 ♀♀, China: Zhejiang: Yuhang, 1987-1988, reared, Sijian Guo, ex *Ceroplastes japonicus* Green on *Prunus mume*, C87(32)3, C88(41)12; 10 ♂♂, China: Zhejiang: Yiwu: Donghe, 25.iv.1981, reared, Li, ex *Ceroplastes japonicus* Green on *Zyzyphus jujuba*, C8108-1; 2 ♂♂, China: Anhui: Hefei, ii.1984, reared, Hangu Zhang, ex *Ceroplastes japonicus* Green on *Thea sinensis*, C8402-2.

Female, length of body 1.1-1.8 mm.

Head.— Antennal scape flat, apical slightly expanded, 3.3 times as long as the maximum width; pedicel cylindrical, 2 times as long as wide, longer than first funicular segment, 1.5 times as long as first funicular segment; all funicular segments widened apically, first to fourth funicular segments clearly longer than wide, fifth and

sixth funicular segments close to square; clava 3 segmented, wider than last funicular segments, longer than apical 3 funicular segments combined. Head in frontal view, wider than high, antennal sockets located between lowest level of eyes and clypeus and near clypeus, head in dorsal view wider than long, frontovetex 2 times as long as wide, eyes nude and reached occipital margin; ocelli forming an acute.

Mesosoma.— Longer than wide. Mesoscutum and scutellum slightly convex, densely punctate.

Wings.— Fore wing: length about 1.7 mm, width about 0.7 mm, pubescent with a hyaline band in medially, filum spinosum 4-5, submarginal vein with about 17 setae.

Legs.— Spur of mid tibia about as long as basal tarsus.

Metasoma.— Flat, shorter than mesosoma, exserted ovipositor about as long as 0.7 of apical segment of hind tarsus.

Colour.— Ocelli red; antennal scape, pedicel and the first to fourth funicular segments yellowish white, mesosoma dorsally mostly blackish brown with blue end green reflections. Head, pronotum, lateral sides of mesonotum and axillae, tegulae, mesopleura, ventral of mesosoma and legs orange; area close to trianglar spot of middle of occiput, maxillary and labial palpi, fore wing except a hyaline band under stigmal vein, hind tibia in the middle and apical tarsi, and ovipositor sheath brown; eyes, antennal clava and metasoma black.

Male.— Length of body about 1.5 mm blackish brown with blue and green reflections. Antennal scape yellowish white, pedicel dark brown, funicular segments and clava light brown. Legs yellow, mid and hind coxae, hind femur medially and tibia mostly blackish brown. Pedicel small, the first funicle segement clearly longer than other funicular segments, fore wing hyaline, pubescent, marginal vein shorter than postmarginal vein. The spur of mid tibia longer than basal tarsus.

Host.— *Ceroplastes japonicus* Green, 1921; *C. rubens* Maskell, 1892(?); *C. ceriferus* (Anderson, 1790) (?); in Japan its host range included *C. floridensis* Comstock, 1881, *C. japonicus* and *C. pseudoceriferus* Green, 1935.

Distribution.— Hebei, Shandong, Henan, Shaanxi, Jiangsu (Nanjing), Zhejiang (Hangzhong, Yuhang,Yiwu), Anhui (Hefei), Jiangxi, Hunan, Quizho; Japan.

Note.— For *M. ? clauseni* sensu Suen (1986: 102) see *M. metaceronemae* Xu; for *M. ? clauseni* sensu Liao et al. (1987: 171) and Dang et al. (1990: 152) p.p., see *M. didesmococci* Shi.

Microterys crescocci spec. nov.
(figs. 5-8)

Material.— Holotype (ZJU), ♂, China: Yunnan: Anning, 24°54′N, 102°24′E, 1900 m, 1987-ix., reared, Hailin Wang, ex *Crescoccus candids*, C8759-9C.

Female, length of body 2.8 mm.

Head.— Antennal scape ventrally clearly expanded, 2.3 times as long as maximum width, pedicel 2.1 times as long as wide at apex, 1.5 times as long as first funicular segment; first funicular segment 1.7 times as long as wide, second-sixth funicular segments widened apically, sixth funicular segments 0.7 times as long as wide; clava slightly longer than fourth-sixth funicular segments combined, slightly

wider than sixth funicular segment, clearly oblique truncated apically. Head in dorsal view 1.7 times as wide as long, 4.5 times as wide as width of frontovetex; ocelli forming an acute triangleof 50°; POL, OCL and OOL 1.0, 1.5 and 0.5 times as long as diameter of anterior ocellus, respectively, anterior ocellus separated from posterior ocellus by 1.5 times POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 2.2 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 1.1 times maximum diameter of torulus; maxillary palp with oblique truncated apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum slightly convex; scutellum flat, with 57 setae.

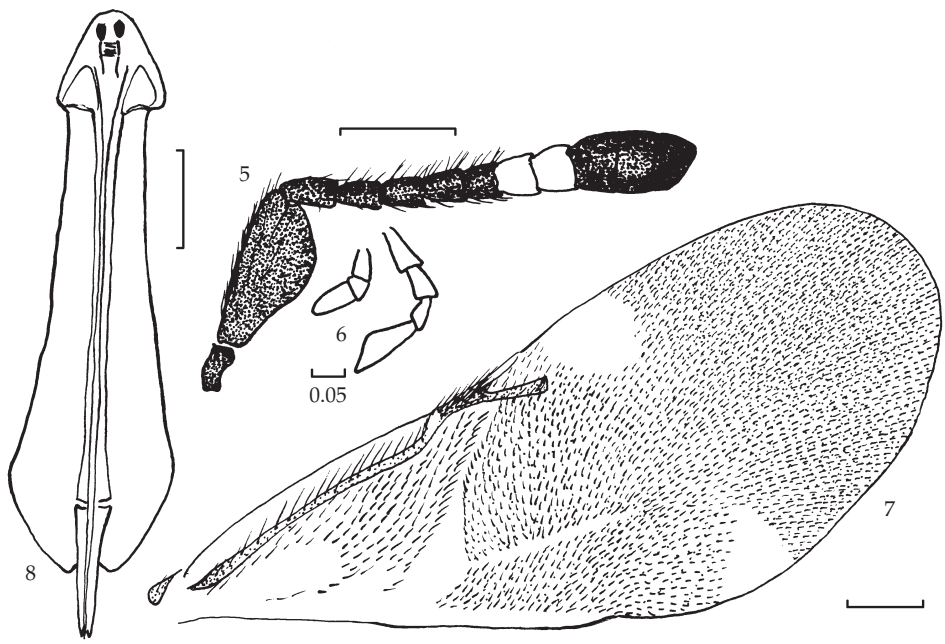
Wings.— Fore wing 2.6 times as long as wide; submarginal vein curved backward, with 16 setae, submarginal, marginal and postmarginal veins 4.7, 0.7 and 0. 9 times as long as stigmal vein, respectively; basal triangle with coarse setae, hyaline patch except marginal vein slightly pubescent, other parts uniformly pubescent.

Legs.— Spurs of mid tibia 1.1 times as long as basitarsus.

Metasoma.— Elongate triangular, ovipositor hidden.

Measurements.— If mid tibia length is 100, then mesosoma is 138, metasoma 169, ovipositor 177, gonostylus 35, and width of outer plate of ovipositor 23.

Colour.— Blackish brown; fifth-sixth funicular segments, and first segment of maxillary palp yellowish white; frontovetex, and face reddish brown; pronotal margins, mesoscutum laterally, tegulae, axillae, scutellum apically, mesopleura, all legs (except hind coxa, and tarsus) yellowish brown; occipital upper part, oral margin lat-



Figs. 5-8, *Microterys crescocci* spec. nov. 5, antenna; x6, maxillary and labial palpi; 7, fore wing; 8, ovipositor.

erally, pedicel and first-fourth funicular segments, third-fourth segments of maxillary palp, labial palp, hind coxa partly and tarsus blackish; fore wing with 2 transverse infuscate bands, inner band touching outer band medially.

Male.— Unknown.

Host.— "*Crescoccus candids*" = *Cresococcus candidus* Wang,1982.

Distribution.— Yunnan (Anning).

Diagnosis.— This new species is similar to *Microterys sylvius* (Dalman, 1820) in body size, colour and structure, but can be distinguished from the latter by the following combination of characters: (1) scape 2.3 times as long as wide (scape 2.5-2.7 times as long as wide in *M. sylvius*); (2) fore wing with inner transverse infuscate band touching outer band medially (inner transverse infuscate band completely separated from outer band); (3) gonostylus longer than width of outer plate of ovipositor (gonostylus shorter than width of outer plate of ovipositor).

Microterys didesmococci Shi, Si & Wang, 1992

Microterys clauseni; Liao et al., 1987: 171.
Microterys didesmococci Shi, Si & Wang, 1992b: 16; Shi et al., 1994: 53.

Material.— Holotype (HenAU), ♂, China: Henan: Zhengzhou, 24.v.1990, reared, Shengli Si & Jinwei Jiang, *Didesmococcus koreanus*. Paratypes: 7 ♂♂ + 1 ♀ (HenAU), same data; 1 ♂, China: Henan: Zhenzhou, 20.i.1990, reared, Zhengya Shi, ex *Didesmococcus koreanus* on *Zyzyphus jujuba*; 1 ♂, China: Shandong: Tai'an, 20.vi.1995, reared, Yusheng Liu, ex *Didesmococcus koreanus* on *Prunus persica*; C9515-1; 16 ♂♂ + 10 ♀♀, China: Zhejiang: Yuhang: Chaoshang, v.1982, reared, Yi Chen, ex *Didesmococcus koreanus* on *Prunus mume*, C8220-1; 3 ♂♂ + 1 ♀, China: Zhejiang: Yuhang: Chongxian, 10.v.1987, reared, Sijian Guo, ex *Didesmococcus koreanus* on *Prunus mume*, C87(30)43; 4 ♂♂ + 6 ♀♀, China: Zhejiang: Shangyu: Fenghui, 9.v.1988, reared, Sijian Guo, ex *Didesmococcus koreanus* on *Prunus mume*, C88(38)25; 1 ♂ + 1 ♀ (RMNH), same data.

Female holotype, length of body 2.5 mm (other specimens 2.1-2.5 mm).

Head.— Antennal scape flat, apically slightly expanded, 3.5 times as long as the maximum width, pedicel cylindrical, 2.0 times as long as wide, longer than first funicular segment, funicular segments widened apically, first to third funicular segments clearly longer than wide, the fourth slightly longer than wide, the fifth and sixth subsquare, clava 3 segmented, slightly flat, with apex obtusely rounded, as long as apical 3 funicular segments combined. Head in dorsal view, wide than long (8: 3), punctate and with sparse setae, frontovetex 1.5 times as long as wide, 0.25 times the head width, eyes nude, reached occipital margin, ocelli forming an equilateral triangle, OOL less than diameter of ocellus, OCL equal to diameter of ocelli, POL 6.0 times as long as OOL; Head in frontal view, slightly wider than height (9.8:8), face and gena sparsely setose, finely reticulate-punctate, antenna located between lowest level of eyes and clypeus and close to clypeus, in lateral view face vertical to frontovetex.

Mesosoma.— Mesoscutum and scutellum slightly convex, coarsely punctate.

Wings.— Fore wing about 2 mm long, 1 mm wide, pubescent, with a hyaline subglabrous band, filum spinosum 4-6; marginal and postmarginal veins 1.0, and 0.8 times as long as stigmal vein, respectively, submarginal vein with 22 setae.

Legs.— Spur of mid tibia about as long as basal tarsus.

Metasoma.— Flat, cordate, about as long as mesosoma, exserted ovipositor sheath 0.5 times as long as apical hind tarsus.

Colour.— Blackish brown, with blue green or copper reflections, eyes glabrous, greenish gray; head, mandible except apex, tegulae, and ovipositor sheath yellowish brown; antennal scape, pedicel and funicular segments except paler brown apical two segments, brown; ocellar area between eyes with dark blue luster, antennal clava, mandibular apex, maxillary and labial palpi, patch around occipital opening, mesosoma, propodeum and metasoma with dark blue metallic reflections, blackish brown; legs yellow but coxae, apical tarsi, fore femur ventrally, spur of mid tibia and hind femur, hind tibia blackish brown. Fore wing weakly infuscate, with a hyaline band.

Male.— Length of body about 1.8 mm, blackish brown, with blue luster, antennal scape yellowish white, pedicel dark brown, funicle and clava light brown; pedicel small, the first funicular segment clearly longer than other funicular segments; fore wing uniformly hyaline, pubescent, marginal vein longer than postmarginal vein, legs yellow, all coxae, hind femur and tibia blackish brown, spur of mid tibia about as long as middle basitarsus.

Host.— *Didesmococcus koreanus* Borchsenius, 1955.

Distribution.— Beijing, Shandong (Tan'an), Henan (Zhenzhou), Zhejiang (Yuhang, Shangyu).

Microterys ditaeniatus Huang, 1980

Microterys ditaeniatus Huang, 1980: 432; Huang et al., 1991: 59.

Material.— Holotype (IZCAS), ♂, China: Fujian, 24.iv.1962, reared, Chunmei Huang, ex *Coccus* sp. Paratypes: 14 ♂♂ + 11 ♀♀ (IZCAS), China: Fujian, 1962-1963, reared, Chunmei Huang, ex *Coccus* spp.; 1 ♂ (IZCAS), China: Guangdong, 4.iv.1961, reared, Chunmei Huang, ex *Coccus hesperidum* on *Citrus reticulata*; 1 ♂, China: Guangdong: Guangzhou, 26.v.1956, reared, Xueliu Li, ex *Coccus hesperidum* on *Citrus reticulata*, C5665-4b.

Female, length of body 1.3 mm.

Head.— Wider than long, ocelli forming an acute triangle, POL as long as 0.66 of the diameter of anterior ocellus, longer than distance between anterior ocellus to post ocellus, OCL about equal to diameter of anterior ocellus. Antennal scape 3.5 times as long as wide, pedicel 2.5 times as long as wide; funicular segments widened apically.

Mesosoma.— Mesoscutum and scutellum slightly convex.

Wings.— Fore wing with marginal vein shorter than postmarginal vein, stigmal vein longer than postmarginal vein.

Legs.— Spur of mid tibia shorter than basal tarsus

Metasoma.— Shorter than mesosoma, with ovipositor slightly exserted.

Colour.— Female body length 1.58 mm, reddish brown; antennal scape, pedicel, clava, first-fourth funicular segments and band between toruli, black; fore margin of pronotum, sides of axillae and sides of scutellum brown; fore wing with two infuscate bands, the apical one narrow and close to apex of wing.

Male.— Length of body: 1.03 mm. Antenna reddish brown, pronotum, fore mar-

gin of mesoscutum, hind margin of scutellum, sides of axillae and the second to fifth segments of metasoma dark brown. Fore wing hyaline.

Host.— *Coccus hesperidum* Linnaeus, 1758.

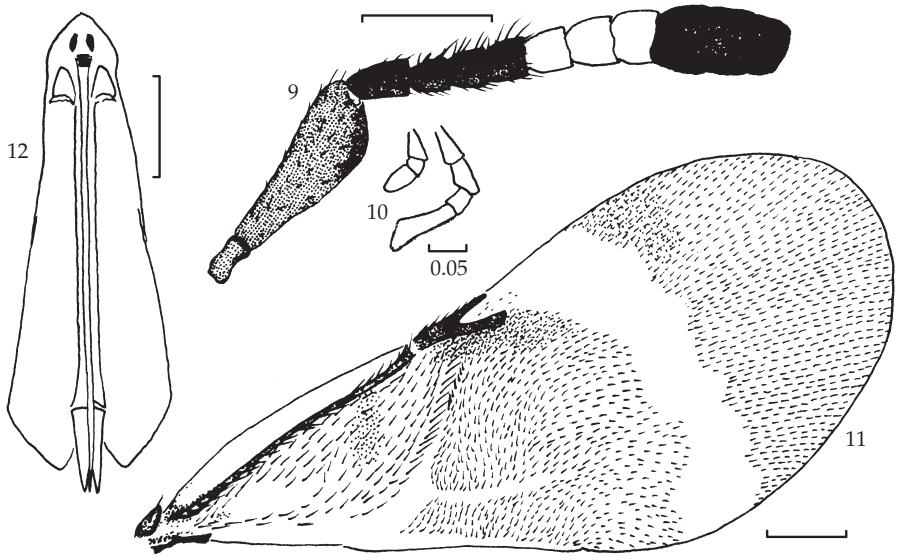
Distribution.— Guangdong (Guangzhou), Fujian.

Microterys drosichaphagus spec. nov.
(figs. 9-12)

Material.— Holotype (ZJU), ♂, China: Shaanxi: Yanglin, 34°12′N, 108°0′E, 8.xii.1984, Xinde Dang, ex *Drosicha contrahens*, C9505-1.

Female, length of body 2.2 mm.

Head.— Antenna: scape medio ventrally clearly expanded, 2.9 times as long as maximum width, pedicel 1.8 times as long as wide at apex, 2.0 times as long as first funicular segment; first funicular segment 1.1 times as long as wide, second funicular segment 1.3 times as long as wide, 1.3 times as long as first funicular segment, other funicular segments as long as second funicular segment, widened apically, sixth funicular segment 0.7 times as long as wide; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, oblique truncate apically. Head in dorsal view 1.9 times as wide as long, its width 3.8 times width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 2.0, 1.5 and 0.5 times as long as diameter of anterior ocellus, respectively, anterior ocellus separated from posterior ocellus by length of POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 1.8 times their maximum diameter, upper



Figs. 9-12, *Microterys drosichaphagus* spec. nov. 9, antenna; 10, maxillary and labial palpi; 11, fore wing; 12, ovipositor.

margin much below lowest level of eye; torulus separated from clypeus by 0.8 times the maximum diameter of torulus; maxillary palp with oblique truncate apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum and scutellum flat, the latter with 62 setae.

Wings.— Fore wing 2.3 times as long as wide; submarginal vein with 22 setae, submarginal, marginal and postmarginal veins 5.9, 0.9 and 0.8 times as long as stigmal vein, respectively; basal triangle with densely coarse setae, hyaline patch except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 10 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Oval, with pointed apex, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 133, metasoma 133, ovipositor 133, gonostylus 27, and width of outer plate of ovipositor 20.

Colour.— Blackish brown, with purple metallic reflections; fourth-sixth funicular segments yellowish white; head, tegulae, mesopleura, legs, base of metasoma ventrally and laterally, and hypopygium apically yellowish brown; pedicel, first-second funicular segments, third funicular segments slightly, second-fourth maxillary palp segments, labial palp, all tarsi apically blackish; clava and occipital upper triangle black; fore wing with basal triangle hyaline, except both transverse infuscate bands, inner band clearly separated from outer band.

Male.— Unknown.

Host.— *Drosicha contrahens* Walker, 1858.

Distribution.— Shaanxi (Yanglin).

Diagnosis.— The new species is similar to *Microterys eulecanii* Pilipjuk & Sugonjaev, 1971, in body size and colour, but can be distinguished from the latter by the following combination of characters: (1) scape 2.9 times as long as wide (scape more than 3.0 times as long as wide in *M. eulecanii*); (2) oral margin dorsally similarly coloured as face (oral margin dorso-laterally dark, differently coloured from face); (3) metasoma as long as mesosoma (metasoma longer than mesosoma).

Microterys ericeri Ishii, 1923

Microterys ericeri Ishii, 1923: 109; Chinese Academy of Science & Zhejiang Agricultural University, 1978: 93; Jiang, 1982: 179; Resources insects compiling team, 1984: 167; Liao, 1987: 356; Liao et al., 1987: 170; Wu, 1989: 62; Sheng, 1989: 83; Dang et al., 1990: 151; Xu et al., 1991b: 71; Xu, 1992: 1286.

Material.— Type series: numerous specimens (NSIPQS), Japan: Nagasaki, 19.v.1922, T. Ishii; 1 ♂, China: Jilin: Qianshang, 9.vi.1962, reared, Dingxi Liao, ex *Ericerus pela*, C7394-160; 6 ♂♂, China: Jiangsu: Dongtingshang Mts., vi.1955, reared, Defang Fan, ex *Ericerus pela*, C5531-1; 4 ♂♂, China: Zhejiang: Hangzhou, 16.vi.1955, reared, Xueliu Li, ex *Ericerus pela* (male), C5533-2; 12 ♂♂ + 3 ♀♀, same data, but 3.v.1981, C8115-12; 35 ♂♂ + 9 ♀♀, same data, but 5.v.1982, reared, Yi Chen, C8209-2; 1 ♂ + 1 ♀ (RMNH), same data; 4 ♂♂ + 7 ♀♀, China: Szechuan: Yingshang, 6.ix.1973, reared, Fu Wang, ex *Ericerus pela*, C7397-1; 7 ♂♂, China: Yunnan, 13.viii.1963, reared, Dingxi Liao, ex *Ericerus pela*, C7394-159.

Female, length of body 1.5 mm.

Head.— Antenna: scape medio-ventrally clearly expanded, 2.7 times as long as maximum width, pedicel 1.8 times as long as wide at apex, 1.2 times as long as first funicular segment; first funicular segment 1.5 times as long as wide, second-third

funicular segments slightly longer than wide, fifth-sixth funicular segments slightly wider than long; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, oblique truncate apically. Head in dorsal view 2.0 times as wide as long, 3.7 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.5, 1.8 and 0.5 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.2 times POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 2.0 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 1.5 times the maximum diameter of torulus; maxillary palp with oblique truncate apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum and scutellum slightly convex, the latter with 50 setae. Wings.— Fore wing 2.5 times as long as wide; submarginal vein with 17 setae, submarginal, marginal and postmarginal veins 4.6, 0.8 and 0.9 times as long as stigmal vein respectively; basal triangle with coarse setae, hyaline patch except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 10 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Oval, with pointed apex, ovipositor clearly exserted.

Measurements.— If mid tibia length is 100, then mesosoma is 117, metasoma 133, ovipositor 150, gonostylus 48, width of outer plate of ovipositor 24, and exserted ovipositor 24.

Colour.— Yellowish red brown, with purple metallic reflections; fifth-sixth funicular segments yellowish white; antennal scape, pedicel, first to fourth funicular segments, fourth segment of maxillary palp, mesoscutum, scutellum and metasoma blackish brown; clava black. Fore wing with 3 transverse infuscate bands, mid band divided into 3-4 patches.

Host.— *Ericerus pela* Chavannes, 1947 (male).

Distribution.— Jilin (Qianshang), Hebei, Jiangsu (Dongtingshang Mts), Zhejiang (Hangzhou), Jiangxi, Hunan, Szechuan (Yingshang), Yunnan (Kunming); Japan.

Note.— In E'mei, Szechuan this species has six to seven generations. The larvae overwinter in the host body, the adults emerge between April to November, but most abundantly from late August to mid September, each female carries 6-30 eggs, lays 4 eggs per day on average. The larva has 5 instars, the life span was 40-45 days in June to July. The sex ratio was 57.3:42.7.

Microterys flavitibiaris Xu, 2000

Microterys flavitibiaris Xu (in Xu, Sheng & Xu), 2000: 264.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Shuichang, 28°36'N, 119°12'E, 1980, reared, Hanlin Chen, 810121. Paratypes: 3 ♂♂ (1 ♂ in RMNH), same data as holotype.

Female, length of body 2.0 mm.

Head.— Antenna: scape ventrally clearly expanded, 2.8 times as long as maximum width, pedicel 2.0 times as long as wide at apex, 1.3 times as long as first funicular segment; first funicular segment 2.1 times as long as wide, other funicular segments widened apically, sixth funicular segment 0.5 times as long as wide; clava slightly

longer than fifth-sixth funicular segments combined, slightly wider than sixth funicular segment, truncated apically. Head in dorsal view 1.6 times as wide as long, 5.4 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 1.5 and 0.2 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.2 times POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 2.1 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by maximum diameter of torulus; maxillary palp with oblique truncated apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum flat; scutellum convex, with 48 setae.

Wings.— Fore wing 2.2 times as long as wide; submarginal vein with 18 setae, submarginal, marginal and postmarginal veins 4.7, 0.9 and 0.9 times as long as stigmal vein, respectively; basal triangle densely coarsely setose, 2 hyaline patches except for marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 11 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Triangular, with rounded apex; ovipositor slightly exserted.

Measurements.— If mid tibial length iss 100, then mesosoma is 123, metasoma 84, ovipositor 88, gonostylus 19, and width of outer plate of ovipositor 20.

Colour.— Blackish brown, with metallic blue and green reflections dorsally, mesoscutum and scutellum with stronger metallic reflections; fifth-sixth funicular segments, first maxillary palp segment, and labial palp white; head, pronotal margins, mesoscutum laterally, tegulae, scutellum laterally, and legs (except coxae and tarsi apically) yellowish brown; following parts : oral margin, pedicel, first-fourth funicular segments, area above scrobe, tarsi apically blackish; clava black; fore wing witj 2 transverse infuscate bands, inner band touching outer band medially.

Male.— Unknown.

Host.— Unknown.

Distribution.— Zhejiang (Shuichang).

Microterys gansuensis spec. nov.
(figs. 13-16)

Material.— Holotype (ZJU), ♂, China: Gansu: Wuwei, 37°54′N, 102°36′E, 2.vii.1981, reared, Zhanjiang Zhao, ex *Eulecanium gigantea*, 814827. Paratypes: 3 ♂♂ + 4 ♀♀ (of which 1 ♂ + 1 ♀ in RMNH), same data as holotype.

Female, length of body 2.5 mm.

Head.— Antenna: scape ventrally slightly expanded, 3.1 times as long as maximum width, pedicel 2.0 times as long as wide at apex, 1.8 times as long as first funicular segment; first funicular segment 1.4 times as long as wide, first, fifth and sixth funicular segments equal in length, second-fourth funicular segments longer, all funicular segments widened apically, sixth funicular segment 0.8 times as long as wide; clava as long as fourth-sixth funicular segments combined, wider than sixth funicular segment, slightly pointed apically. Head in dorsal view 1.9 times as wide as long, 4.1 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 2.0, 1.5 and 0.3 times as long as diameter of anterior ocellus, respectively, anterior ocellus separated from posterior ocellus by length of POL; head

in frontal view 1.2 times as wide as high, toruli separated from each other by 1.9 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.8 times maximum diameter of torulus; maxillary palp with oblique truncate apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum and scutellum flat, with 56 setae.

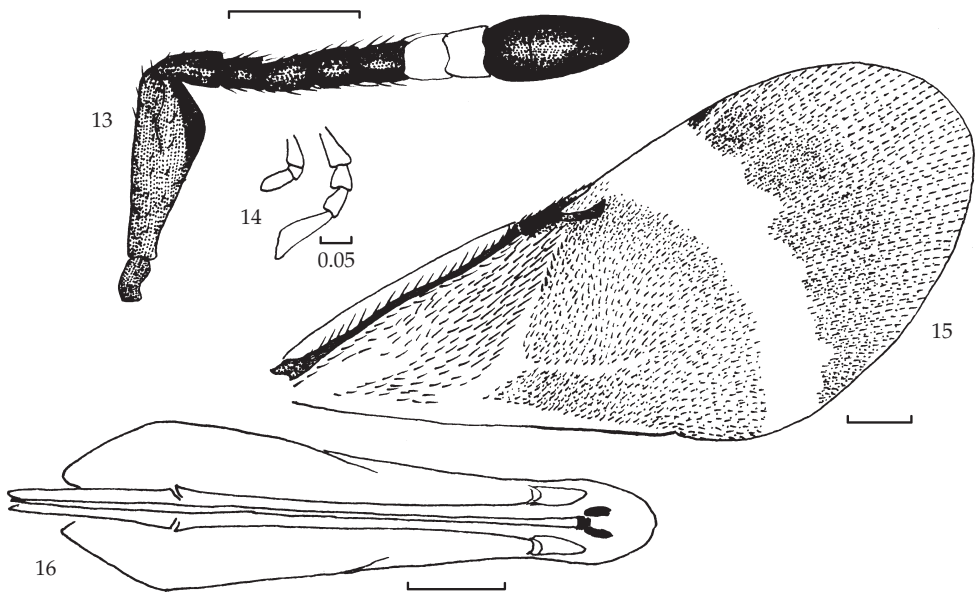
Wings.— Fore wing 2.3 times as long as wide; submarginal vein with 22 setae, submarginal, marginal and postmarginal veins 6.1, 0.9 and 0.8 times as long as of stigmal vein, respectively; basal triangle with dense coarse setae, hyaline patch except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 10 spines apically, spurs of mid tibia 0.8 times as long as basitarsus.

Metasoma.— Oval, with pointed apex; ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 133, metasoma 158, ovipositor 175, gonostylus 43, and width of outer plate of ovipositor 25.

Colour.— Blackish brown, with metallic green reflections; fifth-sixth funicular segments yellowish white; head, pronotum except hind margin, axillae laterally, scutellum apically, fore and mid legs, hind tarsus, patches on metasoma baso-laterally, and ovipositor apically yellowish brown; antennal scape, pedicel, first-fourth funicular segments, oral margin laterally, fourth maxillary palp segment and tarsi apically blackish; mesopleuron reddish brown; clava black; basal triangle of fore wing hyaline, except for both transverse infuscate bands, inner band clearly separated from outer band.



Figs. 13-16, *Microterys gansuensis* spec. nov. 13, antenna; 14, maxillary and labial palpi; 15, fore wing; 16, ovipositor.

Male.— Body length 1.8 mm, black; head, mesoscutum and scutellum with metallic green reflections, wings hyaline; antennal scape, fore and mid femora apically, tibiae apically, tarsi, hind femur apically, first-second tarsal segments yellowish white; pedicel and flagellum, tegulae apically, and other parts of legs blackish.

Host.— *Eulecanium gigantea* Shinji, 1935.

Distribution.— Gansu (Wuwei).

Diagnosis.— The new species is similar to *Microterys eulecanii* Pilipjuk & Sugonjaev, 1971, in body size, colour and structure, but can be distinguished from the latter by the following combination characters: (1) frontovetex 2.1 times as long as wide, (frontovetex less than 2.0 times as long as wide in *M. eulecanii*); (2) no brown patches between ocelli, (with brown patchess between ocelli); (3) basal triangle of fore wing hyaline, distally with 2 transverse infuscate bands (similar pattern but with yellowish reflections and with dark outer margin).

Microterys hei Xu, 2000

Microterys hei Xu (in Xu, Sheng & Xu), 2000: 265.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Lin'an, 30°6'N, 119°42'E, 2.vi.1990, swept by Junhua He, 906307. Paratypes: 3 ♂♂ + 4 ♀♀ (of which 1 ♂ + 1 ♀ in RMNH), same data as holotype.

Female, length of body 1.6 mm.

Head.— Antenna: scape ventrally clearly expanded, 2.8 times as long as maximum width, pedicel 1.8 times as long as wide at apex, 1.2 times as long as first funicular segment; first funicular segment 2.0 times as long as wide, first-third funicular segments equal in length, other funicular segments shortened and widened apically, sixth funicular segment 0.7 times as long as wide; clava as long as fourth-sixth funicular segments combined, wider than sixth funicular segment, rounded apically. Head in dorsal view 1.5 times as wide as long, 5.1 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 1.5 and 0.3 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.2 times POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 1.7 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.7 times maximum diameterof torulus; maxillary palp with pointed apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum flat; scutellum convex, with 42 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 17 setae, submarginal, marginal and postmarginal veins 4.8, 0. 9 and 0. 8 times as long as of stigmal vein respectively; basal triangle with sparse coarse setae, 2 hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 9 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Triangular, with pointed apex; ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 132, metasoma 94, ovipositor 74, gonostylus 19, and width of outer plate of ovipositor 19.

Colour.— Yellowish brown; following parts yellowish white: fourth mostly and fifth, sixth basally funicular segments, maxillary palpi and labial palp; following

parts blackish: pedicel, first-third and fourth ventrally funicular segments, metanotum in the middle; following parts black: clava, sixth funicular segment except basal part; fore wing with 3 transverse infuscate bands, mid band not separated from outer band.

Male.— Length of body 1.3 mm, black; head, mesoscutum with metallic green reflections, scutellum and metasoma with metallic purple reflections; following parts yellowish brown: antennal scape, mesopleura and legs; following parts blackish: flagellum, hind tibia except apical part, tarsi.

Host.— Unknown.

Distribution.— Zhejiang (Lin'an).

Microterys hunanensis Xu & Shi, 1999

Microterys hunanensis Xu & Shi, 1999: 203.

Material.— Holotype (HenAU), ♂, China: Hunan: Changsha, 12.v.1994, reared, Guang Xu, ex *Eulecanium* sp. on *Ligustrum quihoui*, 18-34-1. Paratypes: 10 ♂♂ + 1 ♀ (HenAU), same data, 18-34-2, 1♂, same data, C9504-2.

Female, length of body 1.8-2.5 mm.

Head.— Antennal scape ventrally slightly expanded, 3.3 times as long as maximum width, pedicel 2.2 times as long as wide at apex, 1.4 times as long as first funicular segment; first funicular segment 1.8 times as long as wide, first-fourth funicular segments equal in length and widened apically, fifth funicular segment quadrate, sixth funicular segment 0.8 times as long as wide; clava as long as fourth-sixth funicular segments combined, wider than sixth funicular segment, truncated apically. Head in dorsal view 2.0 times as wide as long, 4.4 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.2, 1.2 and 0.3 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.5 times POL; head in frontal view 1.1-1.2 times as wide as high, toruli separated from each other by 1.9 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by maximum diameterof torulus; maxillary palp with oblique truncated apex, labial palp with rounded apex

Mesosoma.— Mesoscutum and scutellum convex, the latter with 44 setae.

Wings.— Fore wing 2.5 times as long as wide; submarginal vein with 17 setae, submarginal, marginal and postmarginal veins 4.8, 0.7 and 0.8 times as long as stigmal vein respectively; basal triangle with sparse coarse setae, 2 hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 9 spines apically, spurs of mid tibia 1.1 times as long as basitarsus.

Metasoma.— Oval, with pointed apex.

Measurements.— If mid tibial length is 100, then mesosoma is 134, metasoma 116, ovipositor 152, gonostylus 45, width of outer plate of ovipositor 27, and exserted ovipositor 25.

Colour.— Red brown; following parts yellowish white: fifth-sixth funicular segments; following parts yellowish brown: head, antennal scape, legs; following parts

blackish: pedicel, first-fourth funicular segments, oral margin laterally, fourth maxillary palpi, third labial palpi, apical tarsi and basal metasoma; following parts black: clava; fore wing with basal triangle hyaline, outer side 3 transverse infuscate bands, mid band not separated from outer band.

Male.— Length of body 1.3 mm, black; antennal scape, tegulae and legs yellowish white; pedicel, flagellum, and hind tibia slightly, yellowish brown.

Host.— *Eulecanium* spec. on *Ligustrum quihoui* Carr.

Distribution.— Hunan (Changsha).

Microterys ishiii Tachikawa, 1963, fauna spec. nov.

Microterys ishiii Tachikawa, 1963: 231.

Material.— Type series: numerous specimens (IAES), Japan: Nagasaki, vi-viii.1923, T. Ishii, ex *Pulvinaria aurantii* and *P. psidii*; 3 ♂♂, China: Zhejiang: Huangyan, 14.v.1981, reared, Xoumei Zhang & Yungao Wu, ex *Chloropulvinaria aurantii*, C8168-1; 50 ♂♂ + 10 ♀♀, China: Hunan: Changsha, 22.v.1956, reared, Xueliu Li, ex *Chloropulvinaria aurantii* on *Citrus reticulata*, C5633-22; 60 ♂♂ + 20 ♀♀ (of which 1 ♂ + 1 ♀ in RMNH), China: Hunan: Nanyue, 6.v.1956, reared, Xueliu Li, C5648-9,C5648-20; same data.

Female, length of body 1.8 mm.

Head.— Antennal scape 4.0 times as long as wide and as long as the pedicel combined with the first two, and one half of the third, funicular segments. Pedicel twice as long as wide and longer than the first funicular segment. First three funicular segments longer than wide, the fourth as long as wide; the fifth and sixth wider than long. Clava slightly wider than the funicular segments, and as long as the apical three funicular segments combined. Frontovetex 2.5 times as long as wide. Ocelli forming an acute Triangle(not equilateral triangle), the post ocelli almost contiguous to the eye margins and once their own diameter from the occipital margin. Sculpture of frontovetex granular alutaceous, the punctures indistinct.

Wings.— Fore wing with 3 infuscate bands.

Metasoma.— Rounded, as long as wide. Ovipositor not exserted.

Colour.— Mostly ferruginous, oral margin very narrowly dark brown, center of occiput blackish, dorsal and ventral margins of scape dark brown, the intermediate portion concolourous with the face. Pedicel and first 4 funicular segments brownish, the fifth and sixth yellowish, clava blackish, concealed portion of the pronotum blackish; the sides and collar ferruginous, the latter sometimes with dark metallic. Mesoscutum blackish, axillae mostly ferruginous, as are the sides apex of scutellum, tegulae ferruginous, touched with fuscous posteriorly. Prepectus and extreme anterior portions of the mesopleura ferruginous, the renainder blackish. metasoma black. All coxae fuscous, the ventral surfaces suffused with ferruginous. Hind femora and tibiae brownish. Apical segment of hind tarsus fuscous. Remainder of legs ferruginous.

Host.— *Chloropulvinaria aurantii* Cockerell, 1896.

Distribution.— Zhejiang (Huangyan), Hunan (Changsha, Nanyue).

Microterys jiamusiensis spec. nov.
(figs. 17-20)

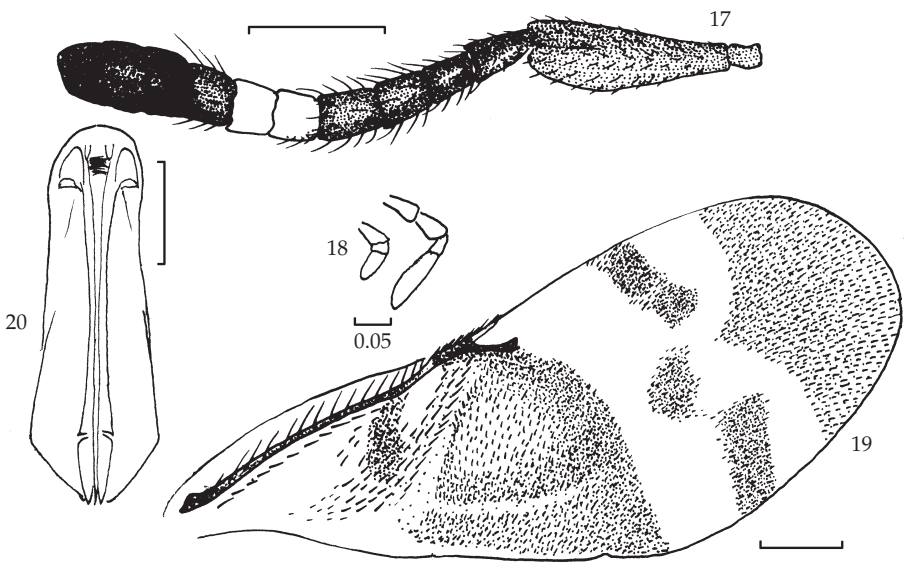
Material.— Holotype (ZJU), ♂, China: Heilongjiang: Jiamusi, 46°48′N, 130°18′E, 16.vii.1992, reared, Juxian Lou, C9506-2. Paratypes: 3 ♂♂ (of which 1 ♂ in RMNH), same data as holotype.

Female, length of body 1.9 mm.

Head.— Antennal scape ventrally clearly expanded, 2.9 times as long as maximum width, pedicel 2.0 times as long as wide at apex, as long as first funicular segment; first funicular segment 1.9 times as long as wide, other funicular segments shortened and widened apically, sixth funicular segment 0.7 times as long as wide; clava as long as fourth-sixth funicular segments combined, wider than sixth funicular segment, rounded apically. Head in dorsal view 1.9 times as wide as long, 4.1 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 2.0, 1.0 and 0.3 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by the length of POL; head in frontal view 1. 2 times as wide as high, toruli separated from each other by 1.7 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 1.3 times maximum diameterof torulus; maxillary palp with pointed apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum flat; scutellum convex, with 52 setae.

Wings.— Fore wing 2.5 times as long as wide; submarginal vein with 18 setae, submarginal, marginal and postmarginal veins 5.6, 0.9 and 0.7 times as long as stigmal



Figs. 17-20, *Microterys jiamusiensis* spec. nov. 17, antenna; 18, maxillary and labial palpi; 19, fore wing; 20, ovipositor.

vein respectively; basal triangle with densely coarse setae, 2 hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 11 spines apically, spurs of mid tibia 1.1 times as long as basitarsus.

Metasoma.— Triangular, with pointed apex, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 133, metasoma 109, ovipositor 109, gonostylus 18, and width of outer plate of ovipositor 22.

Colour.— Yellow brown; following parts yellowish white: fourth-fifth funicular segments; following parts reddish brown: frontovetex and mesopleura; following parts blackish: pedicel, first-third and sixth funicular segments, oral margin laterally, fore and mid coxae(slightly), hind coxae, hind apical tarsi and metasoma; following parts black: clava; pronotum centrally, fore sterna and mid sterna; fore wing with basal triangle hyaline, outer side 3 transverse infuscate bands, inner band lightly infuscate, mid and outer bands infuscate, not clearly separated.

Male.— Unknown.

Host.— Unknown.

Distribution.— Heilongjiang (Jiamusi).

Diagnosis.— The new species is similar to *Microterys tessellatus* Dalman, 1820, in body structure and colour pattern of fore wing, the first-third and sixth funicular segments of both species blackish and the fourth-fifth funicular segments yellowish white. The new species can be distinguished from the latter by the following combination of characters: (1) frontovetex and mesopleura reddish brown, (frontovetex dark green and blue and mesopleura black in *M. tessellatus*); (2) frontovertax 2.2 times as long as wide (frontovertax 2.0 times as long as wide); (3) antennal scape 2.9 times as long as its maximum width (scape 4.0 times as long as its maximum width); (4) body without metallic reflections (with metallic reflections).

Microterys kuwanai Ishii, 1928

Microterys kuwanai Ishii, 1928: 135; Xu & Yuan, 1991b: 497; Shi et al., 1992b: 18; Shi et al., 1994: 53.

Material.— Type series: numerous specimens (IAES), Japan: Nagasaki, vi.1922,T. Ishii, ex *Pulvinaria horii* on *Quercus glauca*; Japan: Ozuki, vi.1923, T. Ishii, ex *P. camericola* on *Ilex othera*; Japan: Nagasaki, iv.1924, T. Ishii, ex *Lecaniodiaspis quercus* on *Quercus glauca*; Japan: Nagasaki, vi. 1924, T. Ishii, ex *Coccus hesperidum* on *Citrus reticulata*; 1 ♂, China: Hunan: Yuanling, 16. viii. 1957, reared, Jinlin Hu, ex *Coccus* sp., C5713-36.

Female, length of body 1.5-1.6 mm.

Head.— Antennal scape below expanded, 3.0 times as long as its maximum width; pedicel 2.0 times as long as the apical width, slightly longer than the first funicular segment, funicular segments widened apically, clava as long as the apical 3 funicular segments combined. Head in dorsal view wider than long, 6.0 times as long as the width of frontovetex at the front ocellus, ocelli forming an acute triangle, postocellus very close to orbita, OCL longer than the diameter of ocellus.

Wings.— Fore wing: pubescent with 3 bands, middle band narrow, clearly twice interrupted, fore wing with marginal vein longer than postmarginal vein.

Metasoma.— Oval. Ovipositor slightly exserted.

Colour.— Body yellowish to reddish brown, eyes dark green, the fifth-sixth funicle segemnts yellowish white, clava black. The following parts brown: pedicel and the first to fourth funicular segments, metanotum, propodeum and metasoma, apical tarsi; fore wing with 3 slightly infuscate bands, the mid band narrow and interrupted twice, wing vein light brown except for yellowish white postmarginal vein.

Host.— *Coccus* spec.; "*Kermes nawai*" = *Kermes nawae* (Kuwana, 1902); *Eulecanium kuwanai* Kanda, 1934; reported abroad from *Coccus hesperidum* Linnaeus, 1758; *Lecaniodiaspis quercus* Cockerell; *Chloropulvinaria floccifera* Westwood, 1870; and *Eupulvinaria horri* (Kuwana,1902).

Distribution.— Henan, Zhejiang, Hunan (Yuanlin); Japan.

Microterys liaoi Xu, 2000

Microterys liaoi Xu (in Xu, Sheng & Xu), 2000: 267.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Zhuji, 29°7′N, 120°2′E, 21.ix.1990, reared, Yonglan Yuan, ex *Kermes nawai* on *Castanea pubinervis*, C9091-2. Paratypes: 2 ♂♂ (of which 1 ♂ in RMNH), same data.

Female, length of body 1.6 mm.

Head.— Antennal scape ventrally slightly expanded, 4.2 times as long as maximum width, pedicel 2.1 times as long as wide at apex, 2.1 times as long as first funicular segment; first funicular segment 1.4 times as long as wide, first-second funicular segments equal in length, third-sixth funicular segments widened apically, sixth funicular segment wide than long; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, truncated apically. Head in dorsal view 2.0 times as wide as long, 4.6 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 1.5 and 0.3 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.2 times POL; head in frontal view 1. 2 times as wide as high, toruli separated from each other by 2.0 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.4 times maximum diameterof torulus; maxillary palp with oblique truncated apex, labial palp with pointed apex

Mesosoma.— Mesoscutum and scutellum convex, the latter with 32 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 17 setae, submarginal, marginal and postmarginal veins 4.6, 0.8 and 1.1 times as long as stigmal vein respectively; basal triangle with sparse coarse setae, 2 hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Spurs of mid tibia as long as basitarsus.

Metasoma.— Oval, with rounded apex, ovipositor slightly exserted.

Measurements.— If mid tibia length is 100, then mesosoma is 137, metasoma 137, ovipositor 120, gonostylus 31, and width of outer plate of ovipositor 23.

Colour.— Yellow brown; following parts yellowish white: fifth-sixth funicular segments; following parts blackish: pedicel, first-fourth funicular segments and apical tarsi; following parts black: clava; fore wing with basal triangle hyaline, outer side 3 transverse infuscate bands, mid band clearly separated from outer band.

Male.— Unknown.

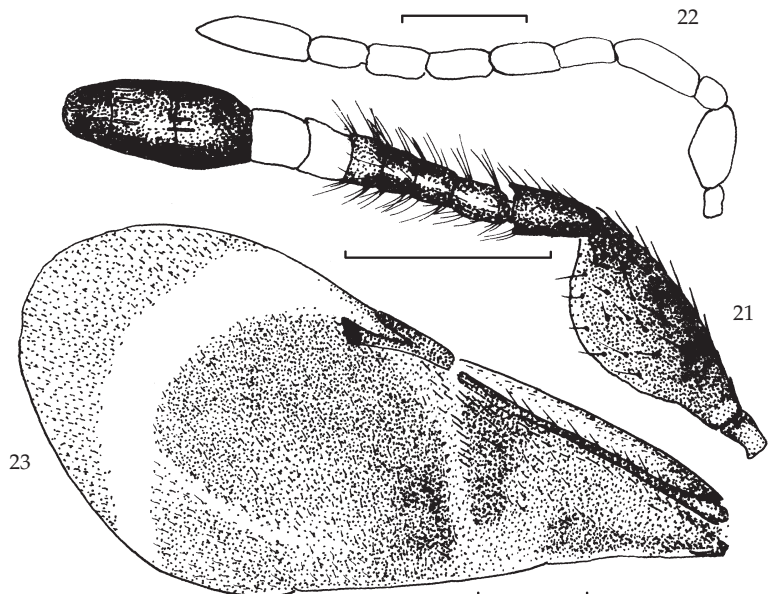
Host.— "*Kermes nawai*" = *Kermes nawae* (Kuwana, 1902).
Distribution.— Zhejiang(Zhuji).

Microterys lii spec. nov.
(figs. 21-23)

Material.— Holotype (ZJU), ♂, China: Shaanxi: Zhouzhi, 34°6'N, 108°12'E, vii.1981, reared, Xinde Dang, ex *Crescoccus* sp. on bamboo, C8365-1. Paratype: 1♀, same data.

Female, length of body 1.6 mm.

Head.— Antennal scape ventrally clearly expanded, 2.3 times as long as maximum width, pedicel 1.8 times as long as wide at apex, 1.65 times as long as first funicular segment; first funicular segment 1.4 times as long as wide, other funicular segments shorter and wider than long, shortened and widened gradually, sixth funicular segment 0.8 times as long as wide; clava as long as third-sixth funicular segments plus half second funicular segment combined, wider than sixth funicular segment. Head in dorsal view 2.0 times as wide as long, 4.1 times as wide as width of frontovetex; ocelli forming an obtuse Triangular; POL, OCL and OOL 2.5, 1.5 and 0.5 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.1 times POL; head in frontal view 1. 3 times as wide as high, toruli separated from each other by 1.5 times their maximum diameter, upper margin above lowest level of eye; torulus separated from clypeus by maximum diameterof torulus; mendible 3 denticles, maxillary palp with oblique truncated apex, labial palp with pointed apex.



Figs. 21-23, *Microterys lii* spec. nov. 21, antenna of ♀; 22, antenna of ♂; 23, fore wing.

Mesosoma.— Mesoscutum slightly convex, with black setae in rows; scutellum flat, longer than mesoscutum, with 18 setae almost in 2 rows, propodeum with 16 setae outer side each spiracle.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 16 setae, parastigma developed, submarginal, parastigma, marginal and postmarginal veins 3.8, 0.6, 0.6 and 0.6 times as long as stigmal vein respectively; basal triangle with sparse coarse setae, linea calva with hind margin opened, hyaline maculation except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 7 spines apically, spurs of mid tibia 0.9 times as long as basitarsus.

Metasoma.— Rounded, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100 (= 0.51 mm), then mesosoma is 150, metasoma 110, ovipositor 120, gonostylus 25, and width of outer plate of ovipositor 25.

Colour.— Yellow brown; following parts white: fifth-sixth funicular segments; following parts blackish brown: first-fourth funicular segments, (fourth segment lighter) and clava; fore wing with basal triangle hyaline, slightly infuscate below, outer side basal triangle to apical 0.75 infuscate and apical margin lighter infuscate, with hyaline band in between.

Male.— Length of body 2.0 mm, black, all legs pale brown to brownish; antennal scape brownish, elongated oval, pedicel rounded, first funicular segment longest, 3.0 times as long as wide.

Host.— *Crescoccus* spec.

Distribution.— Shaanxi (Zhouzhi).

Diagnosis.— The new species is similar to *Microterys darevskii* Trjapitzin, 1968, in body colour and structure and Colour pattern of fore wing, but can be distinguished from the latter by the following combination of characters: (1) antennal scape 2.3 times as long as wide (scape 2.7-2.8 times as long as wide in *M. darevskii*); (2) ocelli forming an obtuse Triangle(ocelli forming an equilateral triangle); (3) ovipositor slightly exserted (not exserted). This new species is named in honor of Prof. Xueliu Li, Zhejiang Agricultural University.

Microterys longiclavatus Xu, 2000

Microterys longiclavatus Xu (in Xu, Sheng & Xu), 2000: 268.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Yuyao, 30°0′N, 121°0′E, v.1992, reared, Qiang Shen, ex *Kermes nawai* on *Castanea pubinervis*, C9404-2. Paratype: 1♂, same data.

Female, length of body 0.9 mm.

Head.— Antennal scape ventrally slightly expanded, 3.1 times as long as maximum width, pedicel 1.8 times as long as wide at apex, 2.2 times as long as first funicular segment; first funicular segment quadrate, other funicular segments equal in length and widened gradually, sixth funicular segment 0.7 times as long as wide; clava as long as third-sixth funicular segments combined, wider than sixth funicular segment, rounded apically. Head in dorsal view 2.0 times as wide as long, 4.0 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 1.5, 1.0 and 0.5 times as long as diameter of anterior ocellus respectively, anterior

ocellus separated from posterior ocellus by the length of POL; head in frontal view 1.1 times as wide as high, toruli separated from each other by 1.8 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.6 times maximum diameter of torulus; maxillary palp with pointed apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum and scutellum convex, the latter with 20 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 12 setae, submarginal, marginal and postmarginal veins 4.5, 0.9 and 0.9 times as long as stigmal vein respectively; basal triangle pubescent similar with outer side, 2 hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Spurs of mid tibia slightly longer than basitarsus.

Metasoma.— Triangular, pointed apically, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 130, metasoma 130, ovipositor 144, gonostylus 35, and width of outer plate of ovipositor 17.

Colour.— Black brown; following parts yellowish white: fifth-sixth funicular segments; maxillary palpi, labial palpi, tegulae, fore and mid legs, hind tibia apically and hind tarsi; head (except surroundings of occipital hole) yellowish brown; clava black; fore wing with basal triangle hyaline, with 3 transverse infuscate bands outer side, mid band broadly interrupted and not clearly separated from outer band.

Male.— Length of body 0.8 mm, black, wings hyaline, following parts yellowish white: antennal scape, flagellum, tegulae and all legs; following parts blackish: pedicel and hind coxae.

Host.— "*Kermes nawai*" = *Kermes nawae* (Kuwana, 1902).

Distribution.— Zhejiang (Yuyiao).

Microterys metaceronemae Xu & Chen, 2000

Microterys clauseni; Sun, 1986: 102 (not Compere, 1920).
Microterys metaceronemae Xu & Chen, 2000: 97.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Qingtian, 28°6′N, 120°18′E, 17.iv.1980, reared, Deyou Sun, ex *Metaceronema japonica* on *Camellia oleosa*, C88347-2. Paratypes: 5 ♂♂ + 1 ♀, (of which 1 ♂ in RMNH), same data.

Female, length of body 2.3 mm.

Head.— Antennal scape ventrally clearly expanded mid, 2.8 times as long as maximum width, pedicel 2.0 times as long as wide at apex, 1. 3 times as long as first funicular segment; first funicular segment 1.8 times as long as wide, other funicular segments shortened and widened gradually, fourth-fifth funicular segments quadrate, sixth funicular segment 0.6 times as long as wide; clava as long as fourth-sixth funicular segments combined, wider than sixth funicular segment, truncated apically. Head in dorsal view 1.8 times as wide as long, 5.5 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 1.0 and 0.2 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.5 times POL; head in frontal view 1. 2 times as wide as high, toruli separated from each other by 2.2 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.8 times maximum

diameterof torulus; maxillary palp with oblique truncated apex, labial palp with rounded apex

Mesosoma.— Mesoscutum flat; scutellum convex, the latter with 62 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 17 setae, submarginal, marginal and postmarginal veins 4.6, 0.8 and 0.8 times as long as stigmal vein respectively; basal triangle with sparse coarse setae, two hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 10 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Cordate, rounded apically, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 139, metasoma 92, ovipositor 91, gonostylus 17, and width of outer plate of ovipositor 23.

Colour.— Black; mesoscutum and scutellum with strongly metallic green reflections, mesopleura and metasoma with weakly metallic green reflections; following parts white: fourth mostly and fifth-sixth funicular segments; first-third maxillary palpi, first-second labial palpi; following parts blackish: antennal scape, pedicel, first-third funicular segments, fourth funicular segment upper margin, oral margin laterally, fourth maxillary palpi, third labial palpi; following parts yellowish brown: head except oral margin, radicles, pronotum laterally and hind margin, mesoscutum laterally, fore legs, mid legs except coxae, hind legs (except coxae, femora basal half, 2 rings on tibiae); clava black; fore wing with basal triangle outer side infuscate, except only two hyaline patches fore and hind margins except marginal vein .

Male.— Length of body 1.5 mm, black, wings hyaline, following parts yellowish: antennal scape, tegulae and all legs (except hind coxae); following parts blackish: pedicel, flagellum, hind coxae, two patches on hind tibia.

Host.— *Metaceronema japonica* Maskell, 1897.

Distribution.— Zhejiang (Qingtian).

Microterys nietneri (Motschulsky, 1859)

Encyrtus nietneri Motschulsky, 1859: 170.
Encyrtus flavus Howard, 1880: 367.
Microterys flavus; Ashmead, 1900: 391; Peng, 1960: 13; Trjapitzin, 1978: 282; Xu, 1985: 412; Li et al., 1987: 254; Li et al., 1987b: 301; Ren et al., 1991: 1; Huang et al., 1991: 59.
Encyrtus frontatus Mercet, 1921: 413; Agriculture Institute of Eastern China, 1957: 150.
Encyrtus fromtatus (!); Lin, 1979: 23.
Microterys nietneri; Trjapitsin 1989: 174.

Material.— Type series in USNM and BMNH; 1 ♂, China: Zhejiang: Yiwu, 25.iv.1981, reared, Xueliu Li, C8109-2; 3 ♂♂, China: Zhejiang: Huangyan, 17.vii.1980, reared, Su'e Xu, ex *Coccus hesperidum* on *Citrus reticulata*, C8129-10; 2 ♂♂, China: Fujian: Shaowu, 1981, reared, Jian Huang, ex *Ceroplastes floridensis*; 20 ♂♂+5 ♀♀, China: Fujian: Shaowu, 17.viii.1985, reared, Baobin Guan, ex *Ceroplastes floridensis*; 13 ♂♂, China: Fujian: Shaxian, 1981, reared, Jian Huang, ex *Ceroplastes floridensis*; 18 ♂♂ + 6 ♀♀ (of which 1 ♂ + 1 ♀ in RMNH), China: Fujian: Jianyang, 15.viii.1985, reared, Baobin Guan, ex *Ceroplastes floridensis*; 15 ♂♂, China: Fujian: Fuzhou, xi.1988, reared, Jian Huang, ex *Ceroplastes floridensis*; 2 ♂♂, China: Fujian: Chong'an: Qiliqiao, 5.vii.1985, reared, Jingzhang Zhao, C9008-1.

Female, length of body 1.7 mm.

Head.— Antennal scape expanded below, 3.0 times as long as its maximum width,

pedicel 2.0 times as long as the apical width, the first funicular segment 1.7 times as long as wide, the fourth funicular segment square, the fifth-sixth funicular segments 0.8 times as long as wide, clava as long as the fourth-sixth funicular segments combined and slightly wider than apical funicular segment. Head in dorsal view, wider than long, 5.8 times as wide as the width of frontovetex at the front ocellus. Ocelli forming an very acute triangle; POL, OCL, OOL 0.5, 3.0, 0.5 times as long as the diameter of front ocellus respectively, the distant between front ocellus and postocellus 3.0 times as long as POL; head in front view 1.1 times as wide as height, toruli seperated from each other by 2.0 times their maximum diameter, the upper margin of toruli below the lowest level of eyes, the distant between the lowest margin of toruli and clypeus 1.0 times as long as the maximum diameter of torulus.

Mesosoma.— With mesoscutum and scutellum convex, scutellum with 20-24 setae.

Wings.— Fore wing 2.6 times as long as wide, submarginal vein with 10-14 setae; marginal and postmarginal veins slightly shorter than stigmal vein.

Metasoma.— Shorter than mesosoma. Exserted ovipositor 0.2-0.25 times as long as metasoma.

Colour.— Yellowish brown. the most of the fourth funicular segment and fifth-sixth funicular segments whitish, antennal clava black. Fore wing hyaline with 3 infuscate bands, outer band expanded and reached mid band.

Hosts.— *Coccus hesperidum* Linnaeus, 1758; *Ceroplastes rubens* Maskell, 1892; *C. floridensis* Comstock, 1881; *C. japonicus* Green, 1921; "*Hemichoinaspis theae*" = *Pinnaspis theae* Maskell, 1891 (?); "*Pulvinaria polygonata*" = *Chrolopulvinaria polygonata* (Cockerell, 1907); *C. psidi* Maskell, 1892; and reported abroad from: *Coccus pseudomagroliarum* Cockerell, 1895; *C. viridis* Green, 1889; *Pulvinaria vitis* Linnaeus, 1758; *Parthenolecanium corni* (Bouché, 1844); *P.* spec., *Protopulvinaria pyriformis* Cockerell, 1894; *Saissetia hemisphaerica* Targioni-Tozzetti, 1867; and *Maacoccus piperis* Green, 1896.

Distribution.— Zhejiang (Yiwu, Huangyan), Anhui, Hunan, Szechuan, Fujian (Fuzhou, Shaowu, Jianyang, Chong'an, Shaxian, Zhangzhou, Nanjing), Guangdong, Guangxi, Guizhou, Yunnan; Japan, India, Malaysia, Sri Lanka, Fiji, Pakistan, Israel, former Soviet Union (introduced from U.S.A.), South Africa, U.S.A., Australia, New Zealand.

Microterys nuticaudatus Xu & Chen, 2000

Microterys nuticaudatus Xu & Chen, 2000: 99.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Songyang, 28°24'N, 119°24'E, 13.viii.1994, reared, Hanlin Chen, 954214. Paratypes: 2 ♂♂ (1 in RMNH), same data.

Female, length of body 1.5 mm.

Head.— Antennal scape ventrally slightly expanded, 3.0 times as long as maximum width, pedicel 1.8 times as long as wide at apex, 1.5 times as long as first funicular segment; first funicular segment 1.8 times as long as wide, all funicular segments equal in length and widened apically, sixth funicular segment quadrate; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, rounded apically. Head in dorsal view 2.0 times as wide as long, 4.7 times as

wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.5, 2.0 and 0.5 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.2 times POL; head in frontal view 1. 1 times as wide as high, toruli separated from each other by 1.5 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.7 times maximum diameterof torulus; maxillary palp with oblique truncate apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum and scutellum convex, the latter with 28 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 15 setae, submarginal, marginal and postmarginal veins 5.8, 0.9 and 0.8 times as long as stigmal vein respectively; basal triangle with sparse coarse setae, two hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 5 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Short oval, pointed apically.

Measurements.— If mid tibial length is 100, then mesosoma is 108, metasoma 100, ovipositor 135, gonostylus 38, width of outer plate of ovipositor 14, and exserted ovipositor 24.

Colour.— Dark brown, head yellow; following parts yellowish white: fourth-sixth funicular segments; following parts blackish: pedicel, first-third funicular segments; clava black; fore wing with basal triangle hyaline, distally with 3 transverse infuscate bands, mid band not clearly separated from outer band.

Male.— Unknown.

Host.— Unknown.

Distribution.— Zhejiang (Songyang).

Microterys okitsuensis Compere, 1926, fauna spec. nov.

Microterys okitsuensis Compere, 1926: 38.

Material.— Type series: 7 ♂♂ (CESUCR), Japan: Okitsu, 17.v.1916, Clausen, ex *Coccus pseudomagnoliarum*, no 1303; 2 ♂♂ (1 ♂ in RMNH), China: Hunan: Changsha, 23.v.1956, reared, Xueliu Li, ex *Coccus hesperidum*, C5645-6.

Female, length of body 1.8 mm.

Head.— Antennal scape 4.0 times as long as wide and as long as the pedicel combined with the first two, and one half of the third, funicular segments. Pedicel twice as long as wide and appreciably longer than the first funicular segment. First three funicular segments longer than wide, the fourth as long as wide; the fifth and sixth wider than long. Clava slightly wider than the funicular segments, and as long as the apical three funicular segments combined. Frontovetex 2.5 times as long as wide. Ocelli in an equilateral triangle, the post ocelli almost contigguous to the eye margins and once their own diameter from the occipital margin. Sculpture of frontovetex granular alutaceous, the punctures indistinct.

Wings.— Fore wing with 3 infuscate bands.

Metasoma.— Rounded, as long as wide. Ovipositor not exserted.

Colour.— Mostly ferruginous, oral margin very narrowly dark brown, center of occiput blackish, dorsal and ventral margins of scape dark brown, the intermediate

portion concolourous with the face. Pedicel and first 4 funicular segments brownish, the fifth and sixth yellowish, clava blackish, concealed portion of the pronotum blackish; the sides and collar ferruginous, the latter sometimes with dark metallic. Mesoscutum and scutellum dark shining metallic, axillae mostly ferruginous, as are the sides apex of scutellum, tegulae ferruginous, touched with fuscous posteriorly. Prepectus and extreme anterior portions of the mesopleura ferruginous, the remainder blackish. Metanotum, propodeum and metasoma blackish. All coxae fuscous, the ventral surfaces suffused with ferruginous. Hind femur and tibia brownish. Apical segment of hind tarsus fuscous. Remainder of legs ferruginous.

Host.— *Coccus hesperidum* Linnaeus, 1758.

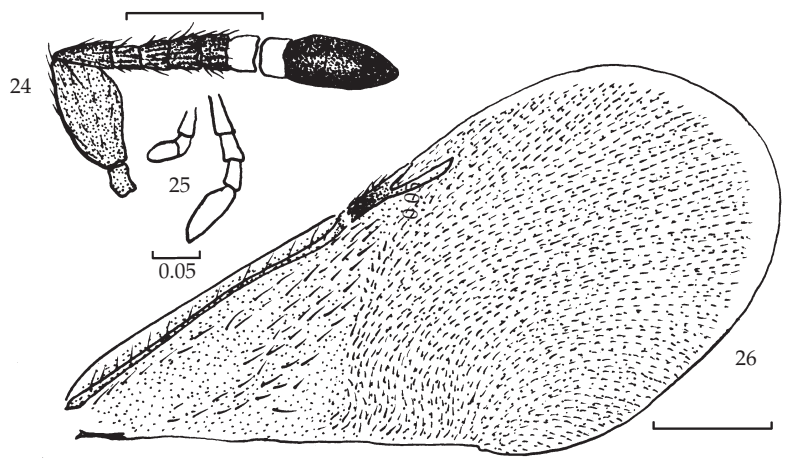
Distribution.— Hunan (Changsha); Japan.

Microterys ovaliscapus spec. nov.
(figs. 24-26)

Material.— Holotype (ZJU), ♂, China: Henan: Zhenzhou, 34°42'N, 113°36'E, 3.vi.1985, reared, Guang Xu, ex *Eriococcus transversus*, C9504-1. Paratypes: 1 ♂ + 2 ♀♀ (of which 1 ♂ + 1 ♀ in RMNH), same data.

Female, length of body 1.4 mm.

Head.— Antennal oval scape expanded, 2.3 times as long as maximum width, pedicel 2.0 times as long as wide at apex, 1.8 times as long as first funicular segment; first funicular segment 1.5 times as long as wide, other funicular segments equal in length and widened apically, sixth funicular segment quadrate; clava slightly longer than fourth-sixth funicular segments combined, slightly wider than sixth funicular segment. Head in dorsal view 2.5 times as wide as long, 3.9 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 3.0, 1.0 and 0.5 times as long as diameter of anterior ocellus, respectively, anterior ocellus



Figs. 24-26, *Microterys ovaliscapus* spec. nov. 24, antenna; 25, maxillary and labial palpi; 26, fore wing.

separated from posterior ocellus by length POL; head in frontal view 1.1 times as wide as high, toruli separated from each other by 1.2 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.8 times maximum diameterof torulus; maxillary palp with pointed apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum and scutellum convex, the latter with 25 setae.

Wings.— Fore wing 2.2 times as long as wide; submarginal vein with 14 setae, submarginal, marginal and postmarginal veins 4.7, 0.7 and 0.6 times as long as stigmal vein, respectively; basal triangle with sparse coarse setae, except marginal vein uniformly pubescent.

Legs.— Spurs of mid tibia as long as basitarsus.

Metasoma.— Triangular, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 130, metasoma 100, ovipositor 130, gonostylus 31, width of outer plate of ovipositor 26.

Colour.— Yellowish brown; fifth-sixth funicular segments, first-second maxillary palp segments, and labial palp yellowish white; oral margin laterally, third-fourth maxillary palp segments, mid coxae, metasoma slightly blackish; clava black; fore wing uniformly infuscate except hyaline apical margin.

Male.— Length of body 1.1 mm, black; antennal scape yellowish white; legs except hind coxa, yellow.

Host.— *Eriococcus transverses* Green, 1922.

Distribution.— Henan (Zhenzhou).

Diagnosis.— The new species is similar to *Microterys danzigae* Sugonjaev, 1971, in body structure, but can be distinguished from the latter by the following combination of characters: (1) antennal scape oval, 2.3 times as long as wide (antennal scape dorsally straight and 2.7-2.8 times as long as wide in *M. danzigae*); (2) the fifth-sixth funicular segments white (funicular segments blackish except for fifth only yellowish segment; (3) apical margin of fore wing hyaline (fore wing completely infuscate).

Microterys postmarginis Xu & Chen, 2000

Microterys postmarginis Xu & Chen, 2000: 100.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Songyang, 28°24'N, 119°24'E, iv.1983, reared, Hanlin Chen, ex *Cerococcus muratae* on *Magnolia officinalis*, 948516. Paratype: 2 ♂♂ (1 ♂ in RMNH), same data, C9222-1.

Female, length of body 1.5 mm.

Head.— Antennal scape ventrally slightly expanded, 3.2 times as long as maximum width, pedicel 1.7 times as long as wide at apex, 1.3 times as long as first funicular segment; first funicular segment 1.6 times as long as wide, other funicular segments equal in length and widened apically, sixth funicular segment 0.9 times as long as wide; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, rounded apically. Head in dorsal view 1.9 times as wide as long, 5.2 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 2.0, 1.5 and 0.5 times as long as diameter of anterior ocellus

respectively, anterior ocellus separated from posterior ocellus by the length POL; head in frontal view as wide as high, toruli separated from each other by 1.5 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.9 times maximum diameter of torulus; maxillary palp with oblique truncate apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum flat; scutellum convex, the latter with 42 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 14 setae, submarginal, marginal and postmarginal veins 5.3, 0.7 and 0.9 times as long as stigmal vein, respectively; basal triangle with sparse coarse setae, both hyaline bands, except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Spurs of mid tibia as long as basitarsus.

Metasoma.— Short, rounded, ovipositor slightly exserted.

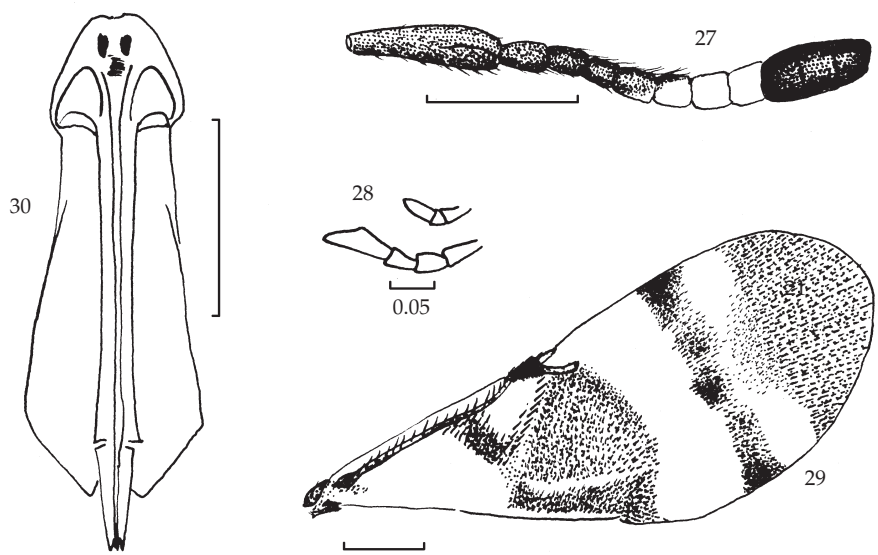
Measurements.— If mid tibial length is 100, then mesosoma is 120, and metasoma 93.

Colour.— Yellowish brown; fourth-sixth funicular segments, and hypopygium yellowish white; mesoscutum, and mesopleuron reddish brown; pedicel, first-third funicular segments, metanotum, and metasoma except hypopygium blackish; clava black; basal triangle of fore wing hyaline, distal part with 3 transverse infuscate bands, mid band not clearly separated from outer band.

Male.— Unknown.

Host.— *Cerococcus muratae* (Kuwana, 1907) on *Magnolia officinalis* Rehd. & Wils.

Distribution.— Zhejiang (Songyang).



Figs. 27-30, *Microterys pseudocrescocci* spec. nov. 27, antenna; 28, maxillary and labial palpi; 29, fore wing; 30, ovipositor.

Microterys pseudocrescocci spec. nov.
(figs. 27-30)

Material.— Holotype (ZJU), ♂, China: Shaanxi: Yangling, 34°12′N, 108°0′E, 8.xii.1984, reared, Xinde Dan, ex *Crescoccus* sp. on bamboo, C9505-3. Paratype, 1 ♂ (RMNH), same data.

Female, length of body 1.6 mm.

Head.— Antennal scape ventrally slightly expanded, 3.5 times as long as maximum width, pedicel 1.5 times as long as wide at apex, 1.5 times as long as first funicular segment; first funicular segment 1.3 times as long as wide, all funicular segments equal in length and widened apically, sixth funicular segment 0.8 times as long as wide; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, rounded apically. Head in dorsal view 1.8 times as wide as long, 4.8 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.2, 1.5 and 0.3 times as long as diameter of anterior ocellus, respectively, anterior ocellus separated from posterior ocellus by 1.1 times POL; head in frontal view 1. 1 times as wide as high, toruli separated from each other by 1.9 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.8 times maximum diameterof torulus; maxillary palp with oblique truncate apex, labial palp with rounded apex

Mesosoma.— Mesoscutum flat; scutellum convex, the latter with 46 setae.

Wings.— Fore wing 2.5 times as long as wide; submarginal vein with 18 setae, submarginal, marginal and postmarginal veins 4.4, 0.8 and 0.8 times as long as stigmal vein respectively; basal triangle with sparse coarse setae, both hyaline bands except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 8 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Triangular, pointed apically, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 110, metasoma 91, ovipositor 91, gonostylus 24, and width of outer plate of ovipositor 14.

Colour.— Yellowish brown, head red brown; third partly, fourth mostly and fifth-sixth funicular segments, maxillary and labial palpi yellowish white; metasoma laterally blackish; clava black; basal triangle of fore wing hyaline, distally with 3 transverse infuscate bands, mid band clearly separated from outer band.

Male.— Unknown.

Host.— *Crescoccus* spec. on bamboo.

Distribution.— Shaanxi (Yangling).

Diagnosis.— The new species is similar to *Microterys tricoloricornis* (de Stefani, 1886) in body structure and colour pattern of the fore wing, but can be distinguished from the latter by the following combination of characters: (1) part of third, most of fourth and complete fifth-sixth funicular segments yellowish white (fourth-sixth funicular segments white in *M. tricoloricornis*); (2) mesosoma without metallic reflections (mesosoma with metallic reflections); (3) gonostylus much longer than width of outer plate of ovipositor (gonostylus as long as the width of outer plate of ovipositor).

Microterys pseudonietneri Xu & Chen, 2000

Microterys pseudonietneri Xu & Chen, 2000: 101.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Wenzhou, 28°0′N, 120°36′E, 28.viii.1982, reared, Zhihong Xu, ex *Ceroplastes japonicus* on *Citrus reticulata*, C8242-2. Paratypes: 3 ♀♀, same data, C8242-3; C8242-6; C8242-8; 2 ♂♂, China: Zhejiang: Wenzhou, ix.1956, reared, Binzhang Xie, ex *Ceroplastes japonicus* on *Citrus reticulata*, C56138-4, C56138-5; 1 ♂, China: Zhejiang: Jinhua, 29°6′N, 119°36′E, 18.viii.1982, reared, Zhihong Xu, ex *Ceroplastes japonicus* on *Camptotheca acuminata*, C8276-2; 3 ♂♂, China: Fujian: Fuzhou, 26°0′N, 119°18′E, vii.1956, reared, Xueliu Li, C56116-1; C56116-2; C56116-4; Paratype 2♂♂, China: Fujian: Fuzhou, 17.iv.1956, reared, Xiufu Zhao, Luozhou no. 1; 1 ♀, China: Fujian: Fuzhou, 19.vii.1956, reared, Jukuan Wu, C56104-2; 6 ♂♂, China: Fujian: Fuzhou, 2.vii.1973, reared, Xueliu Li, C7384-2, C7384-4, C7384-6, C7384-9; 1 ♂, China: Fujian: Fuzhou, 27.iv.1986, reared, Jian Huang, ex *Coccus hesperidum* on *Citrus reticulata*, C9045-1; 6 ♂♂ + 3 ♀♀, (1 ♂ + 1 ♀ in RMNH), China: Fujian: Longxi, 24°30′N, 117°36′E, 6.ix.1956, reared, Rongyu Huang, ex *Ceroplastes japonicus* on *Citrus reticulata*, C8760-7; 7 ♂♂, China: Fujian, Longxi, iv.1956, reared, Jiukuan Wu, ex *Ceroplastes japonicus* on *Citrus reticulata*, C56104-3; 2 ♂♂ + 1 ♀, China: Guangdong, Zhaoqing, 24°0′N, 112°24′E, 4.vii.1978, reared, Junhua He, ex *Pulvinaria* sp. on *Canarium album*, 780428; 4 ♂♂, China: Yunnan, Kunming, 25°0′N, 120°42′E, 7.v.1957, reared, Rongyu Huang, ex *Laccifer lacca*, C8760-2.

Female, length of body 1.5 mm.

Head.— Antenna scape ventrally expanded, 3.0 times as long as maximum width, pedicel 2.0 times as long as wide at apex, 1.9 times as long as first funicular segment; first funicular segment 1.3 times as long as wide, all funicular segments equal in length and widened apically, sixth funicular segment 0.9 times as long as wide; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, rounded apically. Head in dorsal view 2.0 times as wide as long, 7.0 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 2.3 and 0.6 times as long as diameter of anterior ocellus, respectively, anterior ocellus separated from posterior ocellus by 2.4 times POL; head in frontal view 1.4 times as wide as high, toruli separated from each other by 1.7 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.8 times maximum diameterof torulus; maxillary palp with obliquely truncate apex, labial palp with rounded apex

Mesosoma.— Mesoscutum flat; scutellum convex, the latter with 24 setae.

Wings.— Fore wing 2.8 times as long as wide; submarginal vein with 12 setae, submarginal, marginal and postmarginal veins 6.0, 1.1 and 0.6 times as long as stigmal vein, respectively; basal triangle with sparse coarse setae, both hyaline bands except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 5 spines apically, spurs of mid tibia 1.2 times as long as basitarsus.

Metasoma.— Oval, rounded apically.

Measurements.— If mid tibial length is 100, then mesosoma is136, metasoma 113, ovipositor 121, gonostylus 31, width of outer plate of ovipositor 18, and exserted ovipositor 23.

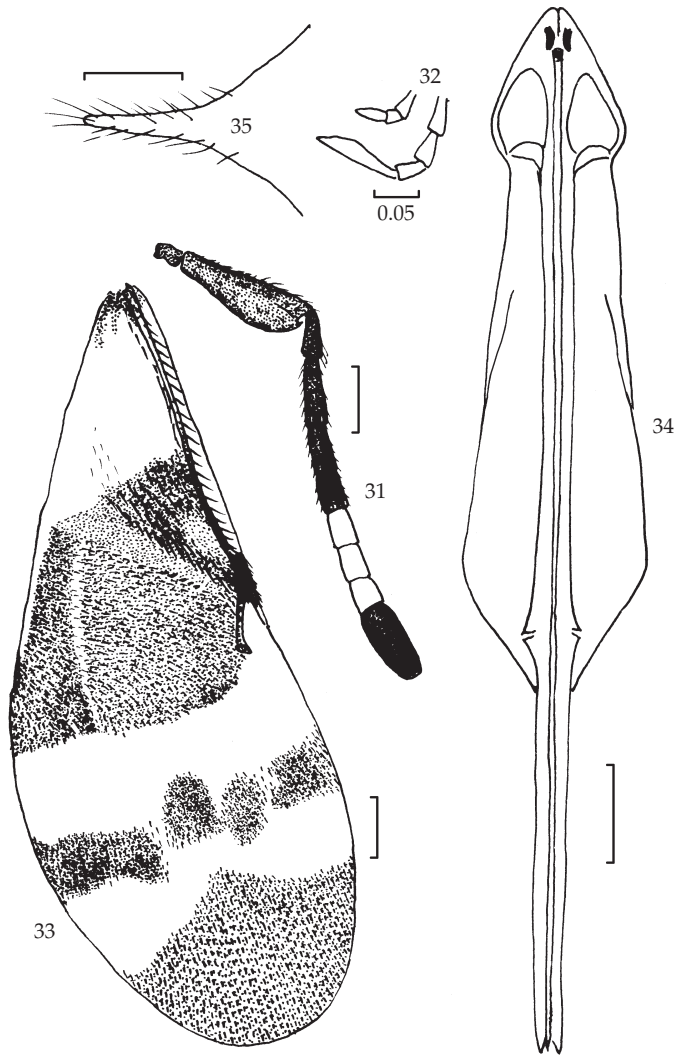
Colour.— Yellowish brown; fourth-sixth funicular segments yellowish white; following parts yellowish brown: pedicel, first-third funicular segments; clava black;

basal triangle of fore wing hyaline, distally with 3 transverse infuscate bands, mid band clearly separated from outer band.

Male.— Length of body 1.0 mm, black, wings hyaline.

Hosts.— *Coccus hesperidum* Linnaeus, 1758; *Ceroplastes japonicus* Green, 1921; *Chloropulvinaria aurantii* Cockerell, 1896; *Laccifer lacca* (Kerr, 1782).

Distribution.— Zhejiang (Wenzhou, Jinhua), Fujian (Fuzhou, Longxi), Yunnan (Kunming), Guangdong (Zhaoqing).



Figs. 31-35, *Microterys psoraleococci* spec. nov. 31, antenna; 32, maxillary and labial palpi; 33, fore wing; 34, ovipositor; 35, last metasomal tergite.

Microterys psoraleococci spec. nov.
(figs. 31-35)

Material.— Holotype (ZJU), ♂, China: Fujian: Fuzhou: Gushan Mts., 26°0′N, 119°18′E, 1977-9-23, reared, Fangde Tang, ex *Psoraleococcus foochowensis* on *Quercus* sp., C9525–1. Paratypes: 3 ♂♂ (1 ♂ in RMNH), same data.

Female, length of body 2.6 mm (excluding exserted ovipositor), or 3. 4 mm (including ovipositor).

Head.— Antenna: scape ventrally expanded, 3.0 times as long as maximum width, pedicel 2.1 times as long as wide at apex, 0.7 times as long as first funicular segment; first funicular segment 3.2 times as long as wide, all funicular segments shortened and widened apically, sixth funicular segment 0.7 times as long as wide; clava about as long as fifth-sixth funicular segments combined, slightly wider than sixth funicular segment, truncated apically. Head in dorsal view 2.1 times as wide as long, 5.3 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 1.5, 1.5 and 0.5 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by length of POL; head in frontal view 1.1 times as wide as high, toruli separated from each other by 1.8 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by maximum diameter of torulus; maxillary palp with pointed apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum and scutellum convex, the latter with 48 setae.

Wings.— Fore wing 2.5 times as long as wide; submarginal vein with 23 setae, submarginal, marginal and postmarginal veins 4.4, 0.7 and 0.8 times as long as stigmal vein respectively; basal triangle with sparse coarse setae, both hyaline bands except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 10 spines apically, spurs of mid tibia 1.1 times as long as basitarsus.

Metasoma.— Oval, pointed apically, ovipositor strongly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is132, metasoma 118, ovipositor 222, gonostylus 104, width of outer plate of ovipositor 21, and exserted ovipositor 94.

Colour.— Reddish brown; third apically and fourth-sixth funicular segments, and ring on mid tibia subbasally yellowish white; pedicel, first-second and third (except apex) funicular segments, and all coxae blackish brown; clava black; basal triangle of fore wing hyaline, distally with 3 transverse infuscate bands, mid band clearly separated from outer band.

Male.— Unknown.

Host.— *Psoraleococcus foochowensis* (Takahashi, 1935).

Distribution.— Fujian (Fuzhou).

Diagnosis.— The new species is similar to *Microterys yunnanensis* Tang & Zheng, 1992, in body size, colour and colour pattern of the fore wing, but can be distinguished from the latter by the following combination of characters: (1) head 5.3 times as wide as width of frontovetex (head 8.0 times as wide as the width of frontovetex in *M. yunnanensis*); (2) ocelli forming an equilateral triangle (ocelli forming a very acute

triangle); (3) antennal scape 3.0 times as long as wide, the first funicular segment 3.2 times as long as wide (scape 3.5 times as long as wide, the first funicular segment 4.0 times as long as wide); (4) exserted ovipositor 0.8 times as long as metasoma, (exserted ovipositor 0.5 times as long as metasoma).

Microterys rufofulvus Ishii, 1928

Microterys rufofulvus Ishii, 1928: 138; Li et al., 1987a: 254; Zhejiang Agricultural University, 1987: 332; Dang et al., 1990: 152; Ren et al., 1991: 1; Shi et al., 1994: 53.
Microterys ceroplastae; Xu, 1985: 412; Li et al., 1987b: 301; Dang et al., 1990: 151; Shi et al., 1992b: 18; Guo et al., 1991: 4. (all misidentified).
Microterys ceroplata(!); Shi et al., 1994: 53.

Material.— Type series 2 ♂♂ (IAES), Japan: Nagasaki, viii.1923, T. Ishii, by sweeping. 10 ♂♂, China: Zhejiang: Hangzhou: Huajiachi, 5.v.1973, reared, Xueliu Li, ex *Takahashia japonica* on *Albizzia julibrissin*, C7320-4; 2 ♂♂ + 1 ♀, China: Zhejiang: Hangzhou, 15.v.1975, reared, Xueliu Li, ex *Takahashia japonica*, C7511-1; 7 ♂♂ + 4 ♀♀, (of which 1 ♂ + 1♀ in RMNH), China: Zhejiang: Hangzhou: Sudi, 30.v.1982, reared, Hengyuan Yan, ex *Takahashia japonica* on *Acer buergerianum*, C8415-2; 5 ♂♂, China: Zhejiang: Hangzhou: Huajiachi, 12.v.1982, reared, Zhihong Xu, ex *Takahashia japonica* on *Xylosma japonica* A. Gray, C8215-1.

Female, length of body about 1.7 mm.

Head.— Antennal scape expanded below and 3.0 times as long as wide, pedicel 2.0 times as long as wide and slightly longer than the first funicular segment; funicular segments widened apically; the first-third funicular segments longer than wide, the fourth–sixth funicular segments wider than long, clava 3 segmented, slightly expanded, as long as the apical 2 segments combined. Head in dorsal view wide than long, as wide as the width of mesosoma, 4.0 times as wide as the width of frontovetex; ocelli forming an acute triangle, POL shorter than the distant between front ocellus and postocellus, postocellus touched eyes; face with evenly concave and between toruli slightly convex.

Mesosoma.— Mesoscutum, axillae and scutellum covered with yellowish brown setae, setae evenly dense and long, basally tegulae with 5 long brown setae, mesopleuron with parallel and longitudinal sculpture.

Wings.— Fore wing with marginal vein 2.0 times as long as wide and about as long as stigmal vein, postmarginal vein slightly shorter than marginal vein.

Legs.— Spur of mid tibia as long as basitarsus.

Metasoma.— Flat and slightly shorter than mesosoma with apex obtuse, ovipositor not exserted.

Colour.— Red and yellow, metasoma darkened. Ventral margin of antennal scape, pedicel and first–fourth funicular segments brown, fifth-sixth funicular segments white, clava black; fore wing with 3 infuscate bands, mid band interrupted twice. Legs yellow, apically tarsi brown.

Hosts.— *Takahashia japonica* Cockerell, 1896; *Ceroplastes rubens* Maskell, 1892; *C. japonicus* Green, 1921; *Chloropulvinaria aurantii* Cockerell, 1896; Pseudococcidae on *Diospyros kaki* Linneaus f.; *Eulecanium kuwanai* Kanda, 1934(?).

Distribution.— Shaanxi, Henan, Zhejiang (Hangzhou), Jiangxi; Japan.

Microterys shaanxiensis spec. nov.
(figs. 36-39)

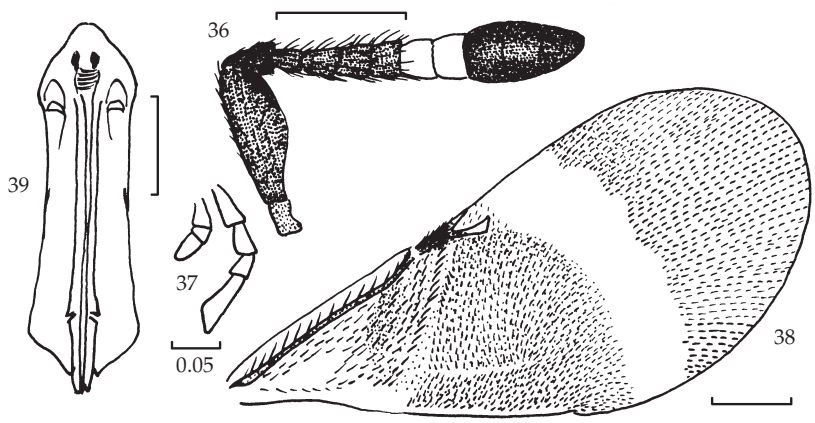
Material.— Holotype (ZJU), ♂, China: Shaanxi: Yangling, 34°12'N, 108°0'E, 8.xii.1984, Xinde Dang, ex *Drosicha contrahens*, C9505-2.

Female, length of body 1.9 mm.

Head.— Antenna scape ventrally expanded, 3.0 times as long as maximum width, pedicel 2.2 times as long as wide at apex, 1.8 times as long as first funicular segment; first funicular segment as long as wide, second funicular segment 1.2 times as long as wide, 1.4 times as long as first funicular segment, other funicular segments shortened and widened apically, sixth funicular segment 0.7 times as long as wide; clava slightly longer than fourth-sixth and half third funicular segments combined, slightly wider than sixth funicular segment, truncated apically. Head in dorsal view 1.9 times as wide as long, 3.8 times as wide as width of frontovetex; ocelli forming an equilateral triangle; POL, OCL and OOL 2.0, 1.5 and 0.5 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by the length of POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 1.8 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.8 times maximum diameter of torulus; maxillary palpi 4 segments, with oblique truncated apex, labial palp with rounded apex

Mesosoma.— Mesoscutum flat; scutellum convex, with 46 setae.

Wings.— Fore wing 2.2 times as long as wide; submarginal vein with 15 setae, submarginal, marginal and postmarginal veins 5.8, 0.9 and 0.8 times as long as stigmal vein respectively; basal triangle with densely coarse setae, hyaline band except marginal vein weakly pubescent, other parts uniformly pubescent.



Figs. 36-39, *Microterys shaanxiensis* spec. nov. 36, antenna; 37, maxillary and labial palpi; 38, fore wing; 39, ovipositor.

Legs.— Mid tibiae with 8 spines apically, spurs of mid tibia 0.8 times as long as basitarsus.

Metasoma.— Oval, pointed apically, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 126, metasoma 151, ovipositor 142, gonostylus 30, and width of outer plate of ovipositor 21.

Colour.— Blackish brown, with metallic purple and green reflections; head, tegulae, mesopleuron, fore leg, mid leg except coxae, first-fourth hind tarsal segments yellow white; following parts: antennal scape ventrally, pedicel, first-fourth funicular segments, maxillary and labial palpi, and fifth tarsal segment blackish; clava and triangle above occiput black; basal triangle of fore wing hyaline, distally with two transverse infuscate bands, inner band clearly separated from outer band.

Male.— Unknown.

Host.— *Drosicha contrahens* Walker, 1858.

Distribution.— Shaanxi (Yangling).

Diagnosis.— The new species is similar to *Microterys eulecanii* Pilipjuk & Sugonjaev, 1971, in body colour, structure and colour pattern of the fore wing, but can be distinguished from the latter by the following combination of characters: (1) antennal scape as long as the fourth-sixth funicular segments and half of third funicular segment combined (scape as long as the fourth-sixth funicular segments combined in *M. eulecanii*); (2) scape 3.0 times as long as its maximum width (scape shorter than 3.0 times of its maximum width); (3) the first funicular segment as long as wide (first funicular segment longer than wide); (4) ovipositor slightly exserted (ovipositor not exserted).

Microterys sinicus Jiang, 1982

Microterys spec.; Resources Insects compiling team, 1984: 167.
Microterys sinicus Jiang, 1982: 80, Wu, 1989: 62; Xu et al., 1991b: 72; Tong, 1992: 1287.

Material.— Holotype ♂ (SzchU), China: Sichuan: Emei, 6.v.1975, reared, Dequan Jiang, ex *Ericerus pela*. Paratypes: 2 ♂♂ + 2♀♀ (SzchU), same data as holotype; 2 ♂♂ + 2 ♀♀ (SzchU), China: Sichuan: Huili, 7.v.1975, reared, Dequan Jiang, ex *Ericerus pela*; 7 ♂♂ (SzchU), China: Sichuan: Zhaojue, 25.v.1974, reared, Dequan Jiang, ex *Ericerus pela*; 7 ♂♂ + 7 ♀♀ (SzchU), China: Yunnan: Qiaojia, 10.v.1974, reared, Dequan Jiang, ex *Ericerus pela*. 3 ♂♂ + 3 ♀♀ (of which 1 ♂ + 1 ♀ in RMNH), China: Hunan: Xupu, viii.1981, reared, Wenxue Wan, ex *Ericerus pela* (egg capsule), C8138-4;); 2 ♂♂, China: Hunan: Zhijiang, 12.x.1990, reared, Yifeng Wan, ex *Ericerus pela*, C9092-2.

Female, length of body 3.4-3.6 mm.

Head.— Antennal scape expanded below, 2.8-3.1 times as long as its maximum width, pedicel 2.0 times as long as its apical width and 1.4-1.6 times as long as the first funicular segment, funicular segments widened apically and equal in length, the first funicular segment 1.4 times as long as wide, the apical segment wider than long, the first-fourth funicular segments covered with short black setae, the fifth-sixth segments covered with white setae, clava about as long as the apical 4 segments combined. Head in dorsal view 4.0 times as wide as the width of frontovetex at front ocellus, ocelli forming an acute triangle, posterior ocelli close to orbita, OCL as long as half diameter of ocellus.

Fore wing.— Length: 2.4 mm, 1.0 mm wide, with two light brown bands, stigmal

vein slightly longer than marginal vein, and twice as long as postmarginal vein, submarginal vein with about 19 setae.

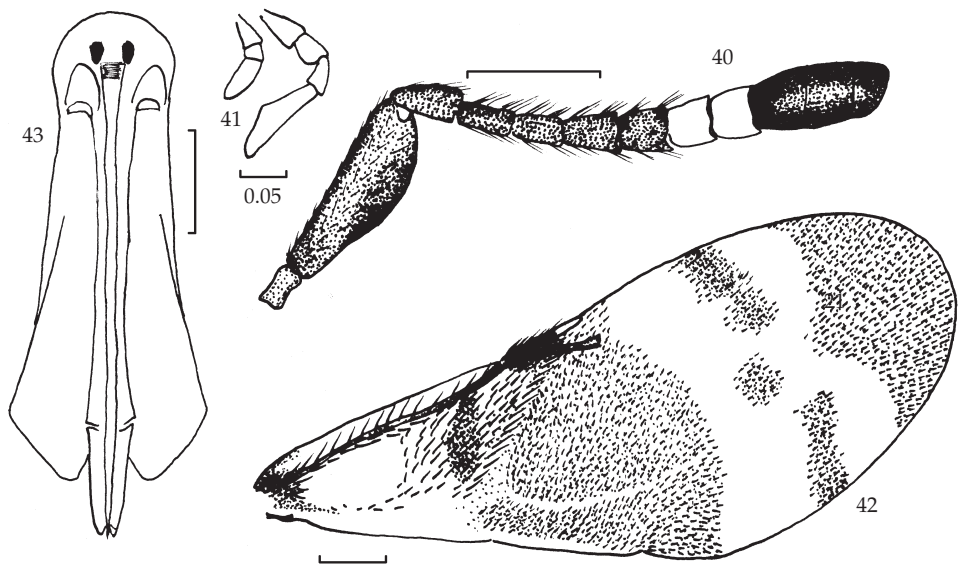
Metasoma.— Longer than mesosoma, outer plate of ovipositor 5-6 times as long as its maximum width, ovipositor sheath 1.5 times as long as maximum width of outer plate, ovipositor exserted.

Colour.— Head yellowish brown, mesosoma and metasoma blackish brown with strong copperous luster, antenna scape and pedicel mainly reddish yellow, apical and ventral margins of scape brown, upper margin of pedicel dark brown, first-third funicular segments brown, fourth segment light brown, fifth-sixth funicular segments yellowish white, clava dark brown, tegulae and mesopleuron reddish yellow, legs red and yellow, all coxae and tarsi apically brown, spur of mid tibia and first-fourth tarsal segments yellowish white, hind femur and tibia light brown.

Male.— Length of body 2.16-2.8 mm, blackish brown with strong copperous luster. Antenna yellowish brown except yellowish white scape, pedicel dark brown. Metanotum, propodeum and metasoma dark brown with weak golden green reflections. Tegulae yellowish brown. legs mainly yellow, hind leg with red brown, hind coxae and all tarsi apically brown. Antennal scape slightly expanded below, pedicel 0.33 times as long as first funicular segment, funicular segments subequal in width and shortened apically, first funicular segment 4.0 times as long as wide, apical segment 3.0 times as long as wide, clava slightly shorter than length of apical 2 segments combined. Wings hyaline. Metasoma clearly longer than mesosoma. Male genitalia 9-10 times as long as its maximum width.

Host.— *Ericerus pela* Chavannes, 1947.

Distribution.— Hunan, Szechuan, Yunnan.



Figs. 40-43, *Microterys skotasmos* spec. nov. 40, antenna; 41, maxillary and labial palpi; 42, fore wing; 43, ovipositor.

Microterys skotasmos spec. nov.
(figs. 40-43)

Material.— Holotype (ZJU), ♂, China: Yunnan: Anning, 24°54′N, 102°24′E, 1987, reared, Hailin Wang, ex *Crescoccus candids*, C8759-9a. Paratypes: 10 ♂♂ + 3 ♀♀ (1 ♂ + 1 ♀ in RMNH), same data.

Female, length of body 2.2 mm.

Head.— Antennal scape ventrally clearly expanded, 2.6 times as long as maximum width, pedicel 2.1 times as long as wide at apex, 1.3 times as long as first funicular segment; first funicular segment 1.9 times as long as wide, other funicular segments subequal in length and widened apically, sixth funicular segment 0.8 times as long as wide; clava as long as fourth-sixth funicular segments combined, wider than sixth funicular segment, slightly oblique truncated apically. Head in dorsal view 2.0 times as wide as long, 4.8 times as wide as width of frontovetex; ocelli forming an equal-lateral triangle; POL, OCL and OOL 3.0, 1.5 and 0.3 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by the length of POL; head in frontal view 1.1 times as wide as high, toruli separated from each other by 2.2 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.9 times maximum diameter of torulus; maxillary palp with oblique truncated apex, labial palp with rounded apex.

Mesosoma.— Mesoscutum flat; scutellum convex, with 68 setae.

Wings.— Fore wing 2.4 times as long as wide; submarginal vein with 23 setae, submarginal, marginal and postmarginal veins 4.5, 0.8 and 0.7 times as long as stigmal vein respectively; basal triangle with densely coarse setae, both hyaline bands except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Spurs of mid tibia as long as basitarsus.

Metasoma.— Oval, pointed apically, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 137, metasoma 128, ovipositor 150, gonostylus 27, and width of outer plate of ovipositor 27.

Colour.— Dark brown, mesoscutum and scutellum with weakly metallic green reflections; fifth-sixth funicular segments yellowish white; pronotum, scutellum apically, mesopleuron, and all legs (except hind coxa) yellowish brown; antennal scape ventrally, maxillary and labial palpi, tarsi apically blackish; clava black; fore wing with 3 transverse infuscate bands, inner band infuscate expanded basally, mid band not clearly separated from outer band.

Male.— Length of body 1.6 mm, black, with metallic purple reflections, wings hyaline; antennae and legs yellowish brown; pedicel blackish.

Host.— "*Crescoccus candids*" = *Cresococcus candidus* Wang, 1982.

Distribution.— Yunnan (Anning).

Diagnosis.— The new species is similar to *Microterys ericeri* Ishii, 1923, in body colour, structure and colour pattern of the fore wing, but can be distinguished from the latter by the following combination of characters: (1) ocelli forming an equal-lateral triangle (ocelli forming an acute triangle (< 60°) in *M. ericeri*); (2) head 4.8 times as wide as width of frontovetex (head 3.7 times as wide as width of frontovetex); (3) gonostylus as long as the width of outer plate of ovipositor (gonostylus clearly longer than the width of outer plate of ovipositor).

Microterys speciosus Ishii, 1923

Microterys speciosus Ishii, 1923: 70; Pen, 1960: 13; Liao et al., 1987: 172; Li et al., 1987b: 301; Sheng, 1989: 83; Dang et al., 1990: 153; Huang et al., 1991: 59; Xu, 1992: 1286; Shi et al., 1994: 53.

Material.— Type series: numerous specimens (NSIPQS), Japan: Shizuoka, 1920, K. Yoshida, ex *Ceroplastes rubens*; numerous specimens (NSIPQS), Japan: Kagashima, 1920, I. Kuwana, ex *Ceroplastes rubens*; 4 ♂♂ (1 ♂ in RMNH), China: Zhejiang: Hangzhou, 21.vi.1990, reared, Zhizhong Lin, ex *Ceroplastes rubens* on *Poncirus trifolia*, C9057-1; 1 ♂, China: Fujian, Shaxian, 8.v.1974, reared, Bangkai Huang, ex *Ceroplastes rubens* on *Citrus reticulata*, C7501-1a; 1 ♂, China: Fujian: Putian, 13.ix.1985, reared, Jian Huang, *Ceroplastes rubens* on *Mangifera indica*, C9022-1.

Female, length of body 1.5-2.2 mm.

Head.— Antenna scape 4.0 times as long as wide, pedicel 2.0 times as long as the apical width and shorter than the first funicular segment, the first-fifth funicular segments clearly longer than wide, the sixth funicular segment slightly wider than long, all funicular segments shortened and widened apically, clava as long as the fourth-sixth funicular segments combined. Head in dorsal view 6.0 times as wide as the width of frontovetex, ocelli forming an acute triangle, OOL half as long as diameter, and OCL equal to diameter of ocellus.

Wings.— Fore wing with marginal and postmarginal veins 0.77 and 0.6 times as long as stigmal vein, respectively, submarginal vein with 15-23 setae. Scutellum with 40-50 setae, mesosoma slightly wider and longer than metasoma.

Legs.— Spur of mid tibia 1.2 times as long as gonostylus.

Metasoma.— Elongate oval; overall length of ovipositor and mid tibia 4.2 and 3.2 times as long as gonostylus. Ovipositor slightly exserted.

Colour.— Yellowish to reddish brown. Antenna with scape, pedicel and first-third funicular segments blackish brown, fourth-sixth funicular segments white. Fore wing with 3 infuscate bands, mid band interrupted twice, legs yellowish.

Male.— Unknown.

Hosts.— *Ceroplastes rubens* Maskell, 1892; *Ceroplastes floridensis* Comstock, 1881; *C. japonicus* Green, 1921, *C. centroroseus* Chen, 1974; and reported abroad: *Coccus viridis* Green, 1889.

Distribution.— Henan, Zhejiang (Hangzhou), Jiangxi, Hunan, Szechuan, Taiwan, Fujiang (Shaxian, Putian), Guangxi; Japan.

Microterys tenuifasciatus spec. nov.
(figs. 44-47)

Material.— Holotype (ZJU), ♂, China: Guangdong: Guanzhou, 23°6'N,113°12'E, 1993-5, swept in litchi garden, Min Wen, C9301-6.

Female, length of body 1.6 mm.

Head.— Antennal scape ventrally clearly expanded, 2.9 times as long as maximum width, pedicel 1.7 times as long as wide at apex, 1.5 times as long as first funicular segment; first funicular segment 1.4 times as long as wide, other funicular segments shortened and widened apically, sixth funicular segment 0. 8 times as long as wide; clava about as long as pedicel plus first-second funicular segments combined,

and longer than fourth-sixth funicular segments combined, wider than sixth funicular segment, rounded apically. Head in dorsal view 2.0 times as wide as long, 4.2 times as wide as width of frontovetex; ocelli forming an obtuse triangle of slightly over 90°; POL, OCL and OOL 3.3, 1.5 and 1.0 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 0. 7 times POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 1.5 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0. 8 times maximum diameter of torulus; maxillary palp with pointed apex, second segment of labial palp very small

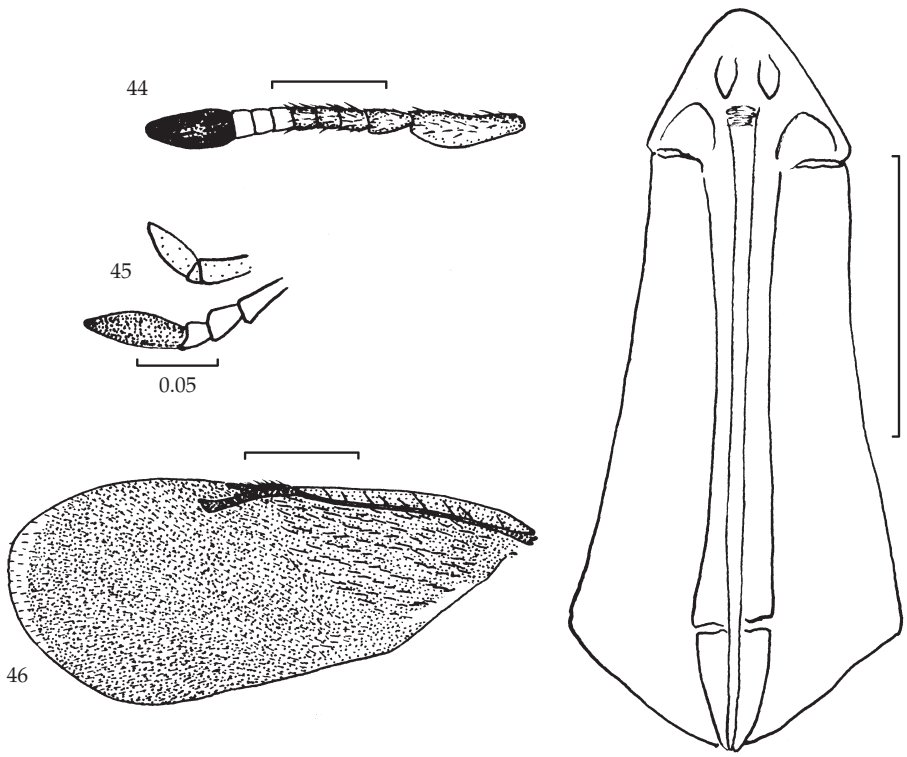
Mesosoma.— Mesoscutum and scutellum convex, the latter with 28 setae.

Wings.— Fore wing 2.3 times as long as wide; submarginal vein with 12 setae, submarginal, marginal and postmarginal veins 5.8, 1.1 and 0.4 times as long as stigmal vein, respectively; basal triangle with coarse setae, distinally except marginal vein uniformly pubescent.

Legs.— Spurs of mid tibia 1.5 times as long as basitarsus.

Metasoma.— Elongated oval, ovipositor hidden.

Measurements.— If mid tibial length is 100, then mesosoma is 131, metasoma 186, ovipositor 137, gonostylus 26, and width of outer plate of ovipositor 23.



Figs. 44-47, *Microterys tenuifasciatus* spec. nov. 44, antenna; 45, maxillary and labial palpi; 46, fore wing; 47, ovipositor.

Colour.— Yellowish red; fourth-sixth funicular segments, first-third maxillary palp segments, and labial palp yellowish white; clava, fourth maxillary palp segment, elliptical patch above occiput black; fore wing almost completely infuscate, only apical margin hyaline.

Male.— Unknown.

Host.— Unknown.

Distribution.— Guangdong (Guanzhou).

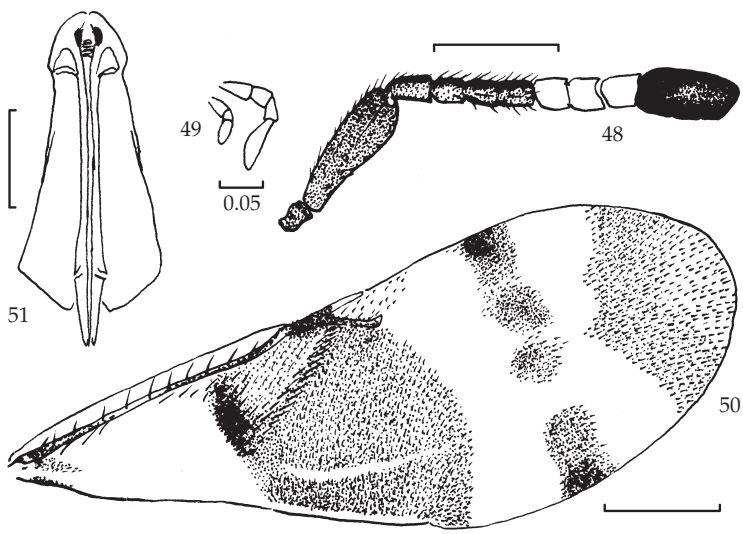
Diagnosis.— The new species is similar to *Microterys brachypterus* (Mercet, 1921) in body colour and structure, but can be distinguished from the latter by the following combination of characters: (1) ocelli forming an obtuse triangle (ocelli forming an equilateral triangle in *M. brachypterus*); (2) fore wing as long as metasoma (fore wing shorter than metasoma); (3) apical margin of fore wing hyaline (fore wing completely infuscate).

Microterys tenuifrons spec. nov.
(figs. 48-51)

Material.— Holotype (ZJU), ♂, China: Guangdong: Guanzhou, 23°6′N,113°12′E, v.1993, swept in litchi garden, Min Wen, C9301-5. Paratype: 1 ♂ (RMNH), sama data.

Female, length of body 2.0 mm.

Head.— Antennal scape ventrally expanded, 3.1 times as long as maximum width, pedicel 2.1 times as long as wide at apex, 1.5 times as long as first funicular segment; first funicular segment 1.5 times as long as wide, other funicular segments equal in length and widened apically, sixth funicular segment 0.9 times as long as wide; clava



Figs. 48-51, *Microterys tenuifrons* spec. nov. 48, antenna; 49, maxillary and labial palpi; 50, fore wing; 51, ovipositor.

as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, rounded apically. Head in dorsal view 2.0 times as wide as long, 5.3 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 1.5 and 0.2 times as long as diameter of anterior ocellus, respectively, anterior ocellus separated from posterior ocellus by 1.2 times POL; head in frontal view 1. 1 times as wide as high, toruli separated from each other by 1.6 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.6 times maximum diameterof torulus; maxillary palp with obliquely truncate apex, labial palp rounded apically.

Mesosoma.— Mesoscutum flat; scutellum convex.

Wings.— Fore wing 2.8 times as long as wide; submarginal vein with 17 setae, submarginal, marginal and postmarginal veins 6.3, 1.0 and 0.7 times as long as stigmal vein respectively; basal triangle with sparse coarse setae, both transverse hyaline bands except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Spurs of mid tibia 1.1 times as long as basitarsus.

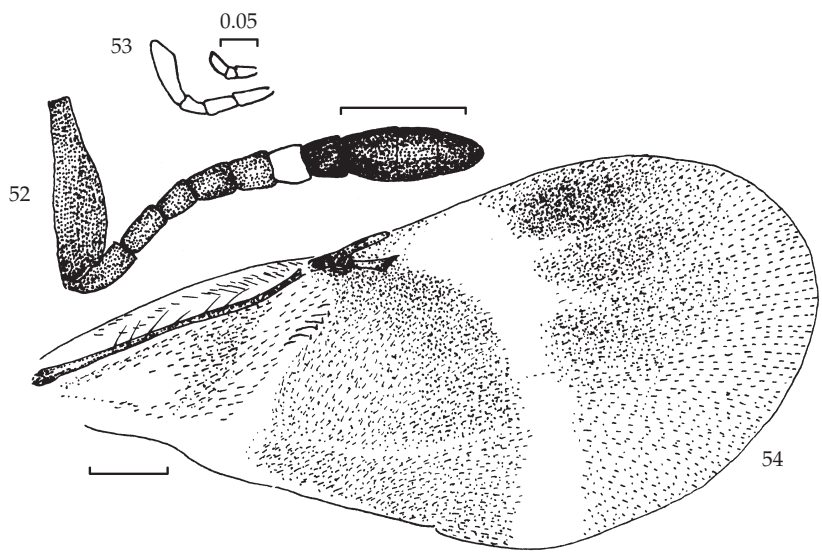
Metasoma.— Oval, with pointed apex.

Measurements.— If mid tibial length is 100, then mesosoma is 107, metasoma 114, ovipositor 145, gonostylus 29, width of outer plate of ovipositor 14, and exserted ovipositor 24.

Colour.— Yellowish brown; fourth-sixth funicular segments yellowish white; pedicel, and first-third funicle above margin blackish; clava black; basal triangle of fore wing hyaline, distally with 3 transverse infuscate bands, mid band clearly separated from outer band.

Male.— Unknown.

Host.— Unknown.



Figs. 52-54, *Microterys tianchiensis* spec. nov. 52, antenna; 53, maxillary and labial palpi; 54, fore wing.

Distribution.— Guangdong (Guanzhou).

Diagnosis.— The new species is similar to *Microterys tricoloricornis* (de Stefani, 1886) in body colour and colour pattern of fore wing, but can be distinguished from the latter by the following combination of characters: (1) clava as long as the fourth-sixth funicular segments combined (clava as long as the fourth-sixth funicular segments and half of third funicular segment combined in *M. tricoloricornis*); (2) metasoma longer than mesosoma (metasoma shorter than mesosoma); (3) exserted ovipositor 0.25 times as long as metasoma (ovipositor not exserted).

Microterys tianchiensis spec. nov.
(figs. 52-54)

Material.— Holotype (ZJU), ♂, China: Xinjiang: Tianchi, 44°12′N 88°0′E, 6.vi.1989, swept, Min Wang, C9517-2.

Female, length of body 2.1 mm.

Head.— Antennal scape ventrally slightly expanded, 4.0 times as long as maximum width, pedicel 2.2 times as long as wide at apex, 1.4 times as long as first funicular segment; first funicular segment 1.9 times as long as wide, other funicular segments shortened and widened apically, sixth funicular segment 1. 1 times as long as wide; clava as long as fourth-sixth funicular segments plus half third funicular segment combined, slightly wider than sixth funicular segment, rounded apically. Head in dorsal view 2.5 times as wide as long, 3.3 times as wide as width of frontovetex; ocelli forming a rectangular triangle; POL, OCL and OOL 1.5, 1.0 and 0.7 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 0.7 times POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 1.7 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.9 times maximum diameter of torulus; maxillary palpi 4 segments, labial palpi 3 segments, rounded apically.

Mesosoma.— Mesoscutum and scutellum flat, the latter with 58 setae.

Wings.— Fore wing 2.1 times as long as wide; submarginal vein with 18 setae, submarginal, marginal and postmarginal veins 5.6, 0.8 and 0.7 times as long as stigmal vein, respectively; basal triangle with dense coarse setae, both hyaline patches except marginal vein at fore and hind margins weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 9 spines apically, spurs of mid tibia 0.8 times as long as basitarsus.

Metasoma.— Elongate oval, with rounded apex.

Measurements.— If mid tibial length is 100, then mesosoma is 126, metasoma 159, ovipositor 183, gonostylus 57, width of outer plate of ovipositor 25, and exserted ovipositor 19.

Colour.— Black, frontovetex and cheeks with weakly dark metallic reflections, mesosoma and metasoma with metallic green reflections; fifth funicular segment, tegulae, and hind tibia basally yellowish white; head except oral margin, fore tibia, mid tibia, hind tibia centrally, and all tarsi yellowish brown; antennal scape, pedicel, first-fourth funicular segments, and oral margin blackish brown; clava black; basal tri-

angle of fore wing and inner band yellow, distally with 2 transverse infuscate bands, inner band clearly separated from outer band.

Male.— Unknown.

Host.— Unknown.

Distribution.— Xinjiang (Tianchi).

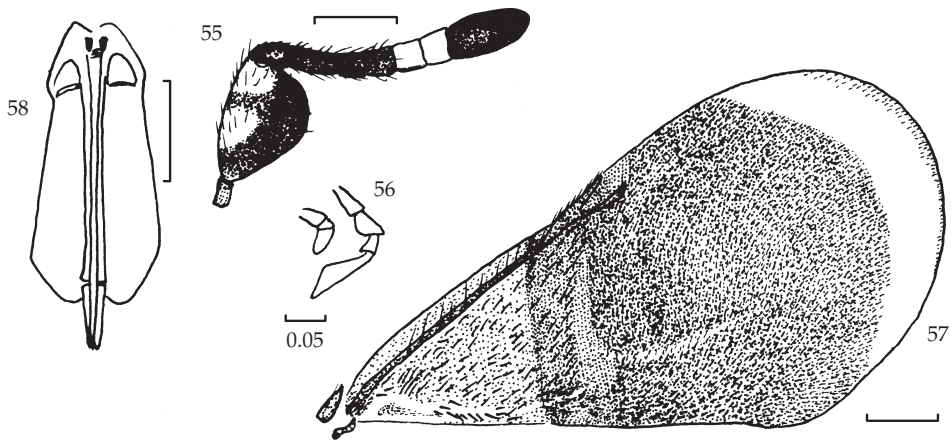
Diagnosis.— The new species is similar to *Microterys sinicus* Jiang, 1984, in body colour, structure and clour pattern of the fore wing, but can be distinguished from the latter by the following combination of characters: (1) width of head 3.3 times width of frontovetex (width of head 4.0 times width of frontovetex in *M. sinicus*); (2) ocelli forming a rectangular triangle (ocelli forming an acute triangle); (3) antennal scape 4.0 times as long as wide (scape 2.8-3.1 times as long as its maximum width); (4) the first-fourth funicular segments blackish brown, the fifth funicular segment white and the sixth funicular segment black (first-third funicular segments brown, the fourth segment light brown, the fifth-sixth funicular segments yellowish white).

Microterys tranusideltus spec. nov.
(figs. 55-58)

Material.— Holotype (ZJU), ♂, China: Fujian: Zhao'an, 23°42'N 117°6'E, 11.vii.1956, swept, Xueliu Li, C5696-1.

Female, length of body 1.8 mm.

Head.— Antennal scape ventrally clearly expanded, 1.5 times as long as maximum width, pedicel 1.8 times as long as wide at apex, 1.2 times as long as first funicular segment; first funicular segment 1.6 times as long as wide, all funicular segments shortened and widened apically, sixth funicular segment 0. 8 times as long as wide; clava as long as fourth-sixth funicular segments combined, wider than sixth funicular segment, rounded apically. Head in dorsal view 2.4 times as wide as long, 4.2 times as



Figs. 55-58, *Microterys tranusideltus* spec. nov. 55, antenna; 56, maxillary and labial palpi; 57, fore wing; 58, ovipositor.

wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 1.5 and 0.3 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.2 times POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 2.1 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.7 times maximum diameter of torulus; maxillary palp obliquely truncate apically, labial palp rounded apically.

Mesosoma.— Mesoscutum and scutellum flat, the latter with 64 setae.

Wings.— Fore wing 2.0 times as long as wide; submarginal vein with 15 setae, submarginal, marginal and postmarginal veins 3.7, 0.7 and 0.7 times as long as stigmal vein, respectively; basal triangle with dense coarse setae, apical hyaline patches weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 6 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Triangular, with rounded apex, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 150, metasoma 100, ovipositor 95, gonostylus 22, and width of outer plate of ovipositor 22.

Colour.— Yellowish brown. Both patches on antennal scape, and fifth-sixth funicular segments yellowish white; scutellumdark brown; antennal scape mostly, pedicel, first-fourth funicular segments above margin, oral margin laterally and hind tarsus apically blackish; clava black; Basal triangle of fore wing slightly infuscate, distally up to subapically deeply infuscate, apical margin hyaline.

Male.— Unknown.

Host.— Unknown.

Distribution.— Fujian (Zhao'an).

Diagnosis.— The new species is similar to *Microterys danzigae* Sugonjaev, 1971, in body colour and structure, but can be distinguished from the latter by the following combination of characters: (1) antenne dark brown except 2 white patches on scape at above margin and the fifth-sixth funicular segments yellowish white (antenna dark brown except for white fifth funicular segment in *M. danzigae*); (2) the first funicular segment 1.6 times as long as wide (first funicular segment 2.5 times as long as wide); (3) basal triangle of fore wing slightly infuscate, and apical margin hyaline (fore wing uniformly infuscate).

Microterys tranusimarginis spec. nov.
(figs. 59-62)

Material.— Holotype (ZJU), ♂, China: Fujian: Shanghang, 25°0'N, 116°24'E, 1100-1400 m, 23.vii.1988, swept, Junhau He, 887483.

Female, length of body 1.8 mm.

Head.— Antennal scape ventrally clearly expanded, 1.9 times as long as maximum width, pedicel 2.1 times as long as wide at apex, 1.5 times as long as first funicular segment; first funicular segment 1.6 times as long as wide, all funicular segments equal in length and widened apically, fifth funicular segment quadrate, sixth funicular segment 0.9 times as long as wide; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, slightly obliquely truncate apically. Head in dorsal view 2.2 times as wide as long, 3.6 times as wide as width of frontovetex;

ocelli forming an equilateral triangle; POL, OCL and OOL 2.0, 1.5 and 0.3 times as long as diameter of anterior ocellus, respectively, anterior ocellus separated from posterior ocellus by length of POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 1.5 times their maximum diameter, upper margin below lowest level of eye; torulus separated from clypeus by 0.7 times maximum diameterof torulus; maxillary palpi slightly obliquely truncate apically, labial palpi rounded apically.

Mesosoma.— Mesoscutum and scutellum slightly convex, the latter with 28 setae.

Wings.— Fore wing 2.2 times as long as wide; submarginal vein with 13 setae, submarginal, marginal and postmarginal veins 4.5, 0.8 and 0.6 times as long as stigmal vein, respectively; basal triangle with dense coarse setae, apical hyaline patches weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 8 spines apically, spurs of mid tibia 0.9 times as long as basitarsus.

Metasoma.— Elongate oval, with pointed apex.

Measurements.— If mid tibial length is 100, then mesosoma is 133, metasoma 133, ovipositor 178, gonostylus 45, and width of outer plate of ovipositor 27.

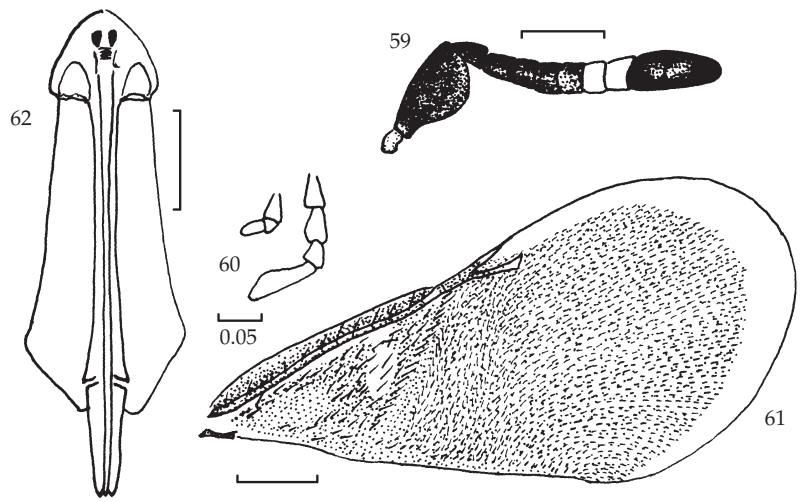
Colour.— Reddish brown, fifth-sixth funicular segments, maxillary and labial palpi yellowish white; face, radicle, legs, metasoma ventrally mostly yellowish brown; metasoma dorsally and ventrally basally blackish; antennal scape, pedicel, first-fourth funicular segments, clava black; fore wing slightly infuscate, but apical margin hyaline.

Male.— Unknown.

Host.— Unknown.

Distribution.— Fujian (Shanghang).

Diagnosis.— The new species is similar to *Microterys danzigae* Sugonjaev, 1971, in body colour and structure, but can be distinguished from the latter by the following



Figs. 59-62, *Microterys tranusimarginis* spec. nov. 59, antenna; 60, maxillary and labial palpi; 61, fore wing; 62, ovipositor.

combination of characters: (1) the first funicular segment 1.6 times as long as wide (first funicular segment 2.5 times as long as wide in *M. danzigae*); (2) the fifth-sixth funicular segments white, (antenna black, only the fifth funicular segment yellowish white); (3) apical margin of fore wing hyaline, (fore wing uniformly infuscate).

Microterys unicolouris Xu & Chen, 2000

Microterys spec: Xu, 1985: 412.
Microterys unicolouris Xu & Chen, 2000: 103.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Hangzhou, 30°12′N, 120°6′E, 11.vi.1983, reared, Zhihong Xu, ex *Ceroplastes rubens* on *Diospyros kaki*, C8319-5. Paratype, 1♀, same data.

Female, length of body 1.9 mm.

Head.— Antennal scape ventrally clearly expanded, 2.8 times as long as maximum width, pedicel 1.7 times as long as wide at apex, 1.8 times as long as first funicular segment; first funicular segment 1.5 times as long as wide, all funicular segments shortened and widened apically, sixth funicular segment 0.7 times as long as wide; clava as long as fourth-sixth funicular segments combined, clearly wider than sixth funicular segment. Head in dorsal view 2.5 times as wide as long, 4.6 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.3, 0.3 and 0.5 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by the length of POL; head in frontal view 1.1 times as wide as high, toruli separated from each other by 1.4 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 0.8 times maximum diameterof torulus; maxillary palp pointed apically.

Mesosoma.— Mesoscutum and scutellum convex, the latter with 34 setae.

Wings.— Fore wing 2.3 times as long as wide; submarginal vein with 12 setae, submarginal, marginal and postmarginal veins 5.0, 0.9 and 0.6 times as long as stigmal vein, respectively; basal triangle with dense coarse setae, except marginal vein uniformly pubescent.

Legs.— Spurs of mid tibia 1.1 times as long as basitarsus.

Metasoma.— Cordate, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 147, metasoma 142, ovipositor 140, gonostylus 37, and width of outer plate of ovipositor 21.

Colour.— Yellowish brown, fifth-sixth funicular segments whitish; clava black; fore wing wholly uniformly slightly infuscate.

Male.— Length of body 1.3 mm, black, with metallic green reflections; antennal scape, tegulae, and all legs yellowish white.

Host.— *Ceroplastes rubens* Maskell, 1892.

Distribution.— Zhejiang (Hangzhou).

Microterys varicoloris spec. nov.
(figs. 63-66)

Material.— Holotype (ZJU), ♂, China: Liaoning: Shenyang, 41°48′N, 123°4′E, 10.vii.1991, swept, Juxian Lou, C9506-1.

Female, length of body 1.5 mm.

Head.— Antennal scape ventrally clearly expanded, 2.9 times as long as maximum width, pedicel 1.9 times as long as wide at apex, 1.9 times as long as first funicular segment; first funicular segment 1.7 times as long as wide, all funicular segments equal in length and widened apically, sixth funicular segment 0.8 times as long as wide; clava as long as fourth-sixth funicular segments combined, slightly wider than sixth funicular segment, rounded apically. Head in dorsal view 2.1 times as wide as long, 3.0 times as wide as width of frontovetex; ocelli forming an obtuse triangle; POL, OCL and OOL 3.0, 1.0 and 0.5 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 1.1 times POL; head in frontal view 1.1 times as wide as high, toruli separated from each other by 1.4 times their maximum diameter, upper margin touched lowest level of eye; torulus separated from clypeus by 0.9 times maximum diameter of torulus; maxillary palp obliquely truncate apically, labial palpi rounded apically.

Mesosoma.— Mesoscutum flat; scutellum convex, the latter with 24 setae.

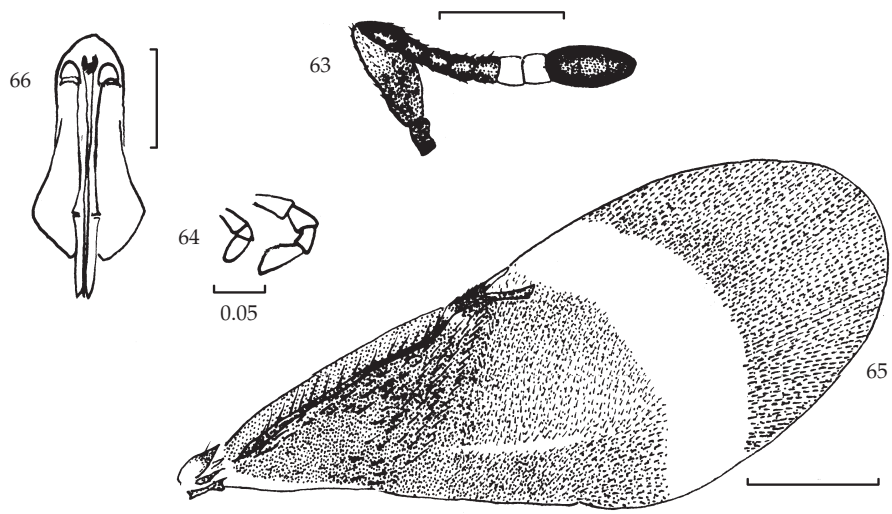
Wings.— Fore wing 2.6 times as long as wide; submarginal vein with 15 setae, submarginal, marginal and postmarginal veins 4.5, 0.8 and 0.7 times as long as stigmal vein, respectively; basal triangle with dense coarse setae, hyaline patche except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Spurs of mid tibia 1.2 times as long as basitarsus.

Metasoma.— Elongate oval, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 127, metasoma 167, ovipositor 133, gonostylus 37, and width of outer plate of ovipositor 23.

Colour.— Dark brown, apical 0.4 of antennal scape, fifth-sixth funicular segments, maxillary and labial palpi yellowish white; face, and cheeks yellowish brown; pedicel,



Figs. 63-66, *Microterys varicoloris* spec. nov. 63, antenna; 64, maxillary and labial palpi; 65, fore wing; 66, ovipositor.

and first-fourth funicular segments blackish; basal 0.6 of antennal scape, clava, and triangular patch above occipite black; fore wing wit 2 transverse infuscate bands, inner band deeply infuscate from basis of wing to under marginal vein, clearly separated from outer band, outer band nearly hyaline.

Male.— Unknown.

Host.— Unknown.

Distribution.— Liaoning (Shenyang).

Diagnosis.— The new species is similar to *Microterys sylvius* (Dalman, 1820) in body colour, structure, and the fore wing of both species has two clearly separated transverse infuscate bands, but can be distinguished from the latter by the following combination of characters: (1) basal 0.6 of antennal scape black and apical 0.4 yellowish white (antennal scape wholly black in *M. sylvius*); (2) ocelli forming an obtuse triangle (ocelli forming an equilateral triangle); (3) the gonostylus longer than width of outer plate of ovipositor (gonostylus shorter than width of outer plate of ovipositor).

Microterys yunnanensis Tang & Zheng, 1992

Microterys yunnanensis Tang & Zheng, 1992: 285.

Material.— Holotype (ZIShNU), ♂, China: Yunnan: Menzi-Nanhu, vii.1988, swept, Yaogeng Tan. Paratypes: 3 ♂♂ (ZIShNU), same data; 1 ♂, China: Hunan: Zhijiang, 22.viii.1980, swept, Yifeng Wan, *Ericerus pela(?)*, C8005-1.

Female, length of body 2.9 mm (ovipositor not included), 3.5 mm (ovipositor included).

Head.— Antenna with scape expanded below at apical 0.66 and 3.5 times as long as wide, pedicel about half as long as the first funicular segment; all funicular segments longer than wide and shortened apically, the first funicular segment 4.0 times as long as wide, the sixth funicular segment 1.4 times as long as wide; clava with apex truncated and as long as the fifth-sixth funicular segments combined. Head in dorsal view, over 2.0 times as wide as long, 8.0 times as wide as the width of frontovetex at front ocellus, occipital margin slightly concave and ridged, ocelli forming a very acute triangle, postocellus nearly touch orbita, POL shorter than the diameter of ocellus, OCL 2.0 times as long as the diameter of ocellus. Scrobe wide and clearly concave and forming a triangle, lateral margin ridged; toruli with upper margin under the lowest level of eyes and separated by 1.5 times their maximum diameter;

Mesosoma.— Dorsally convex, clearly wider than head, mesoscutum 1.5 times as wide as long, covered with dense setae; scutellum as long as wide with 32 setae, last pair of setae specially long, spur of mid tibia slightly longer than basal tarsus. Mesoscutum and scutellum sculptured.

Wings.— Fore wing about 3.0 times as long as wide, marginal vein slightly shorter than stigmal vein, postmarginal vein shorter than stigmal vein, hind wing pubescent except basally.

Metasoma.— Narrower than mesosoma, nearly triangular, 1.4 times as long as mesosoma. Ovipositor strongly exserted.

Colour.— Yellowish brown. Antenna pedicel and the first-third funicular segments blackish brown and light below, fourth-sixth funicular segments white, clava

blackish brown. Axillae, scutellum, metanotum and central propodeum blackish brown. first-third segments of metasoma dark brown, fourth segment brown, scutellum and basal metasoma with purple luster. Fore wing with 3 infuscate bands. Coxa and basis of femurof mid leg blackish brown, other parts yellowish brown, sometimes fore coxa slightly darkened.

Male.— Unknown.

Host.— *Ceroplastes* spec. on "*Nerium odorum*" = *Nerium indicum* Mill., *Ericerus pela* Chavannes, 1947.

Distribution.— Hunan (Zhijiang), Yunnan (Mengzi).

Microterys zhaoi Xu & Chen, 2000

Microterys zhaoi Xu & Chen, 2000: 104.

Material.— Holotype (ZJU), ♂, China: Zhejiang: Songyang, 28°24'N, 119°24'E, 19.xi.1992, reared, Hanlin Chen, ex *Cerococcus muratae* on *Magnolia officinalis*, 948516. Paratypes: 5 ♂♂ + 1 ♀ (1 ♂ in RMNH), same data.

Female, length of body 2.0 mm.

Head.— Antennal scape ventrally expanded, 3.0 times as long as maximum width, pedicel 2.1 times as long as wide at apex, as long as first funicular segment; first funicular segment 2.7 times as long as wide, all funicular segments shortened and widened apically, sixth funicular segment 0.8 times as long as wide; clava as long as fifth-sixth plus half fourth funicular segments combined, slightly wider than sixth funicular segment, truncated apically. Head in dorsal view 2.2 times as wide as long, 5.4 times as wide as width of frontovetex; ocelli forming an acute triangle; POL, OCL and OOL 1.0, 1.5 and 0.2 times as long as diameter of anterior ocellus respectively, anterior ocellus separated from posterior ocellus by 2.0 times POL; head in frontal view 1.2 times as wide as high, toruli separated from each other by 2.3 times their maximum diameter, upper margin much below lowest level of eye; torulus separated from clypeus by 1.2 times maximum diameter of torulus; maxillary palpi obliquely truncate apically, labial palpi rounded apically.

Mesosoma.— Mesoscutum flat; scutellum convex, with 54 setae.

Wings.— Fore wing 2.5 times as long as wide; submarginal vein with 18 setae, submarginal, marginal and postmarginal veins 4.8, 0.8 and 0.9 times as long as stigmal vein, respectively; basal triangle with densely coarse setae, 2 hyaline patches except marginal vein weakly pubescent, other parts uniformly pubescent.

Legs.— Mid tibiae with 7 spines apically, spurs of mid tibia as long as basitarsus.

Metasoma.— Elongate oval, ovipositor slightly exserted.

Measurements.— If mid tibial length is 100, then mesosoma is 150, metasoma 83, ovipositor 83, gonostylus 10, and width of outer plate of ovipositor 17.

Colour.— Body yellowish brown, antennal funicle with the fifth and sixth segments yellowish white; antennal pedicel and upper margin of first-fourth funicular segments and tarsi apically blackish; antennal clava, mesopleuron except anterior part, metanotum, and metasoma black; basal triangle of fore wing hyaline, and with 3 infuscate bands distally of stigma, mid band not clearly separated with outer band.

Male.— Unknown.

Host.— *Cerococcus muratae* (Kuwana, 1907).
Distribution.— Zhejiang (Songyang).

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Index of reported plant hosts

Index of hosts of *Microterys* species in China