

飞虱科三新属四新种* (同翅目:蜡蝉总科)

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摘要 记述飞虱科3新属,即奇臀飞虱属 *Miranus* Chen et Ding, gen. nov., 东洋飞虱属 *Orientoya* Chen et Ding, gen. nov. 和凹缘飞虱属 *Aoyuanus* Ding et Chen, gen. nov., 4新种为葛氏奇臀飞虱 *M. kuohi* Chen et Li, sp. nov.、环鳞奇臀飞虱 *M. circus* Chen et Ding, sp. nov.、东洋飞虱 *Orientoya orientalis* Chen et Ding, sp. nov. 和叉茎凹缘飞虱 *Aoyuanus furcatus* Ding et Chen, sp. nov., 及1新组合,片刺奇臀飞虱 *M. varians* (Kuoh), comb. nov.。模式标本分别保存于贵州大学昆虫研究所(GZU)和南京农业大学植物保护系(NJAU)。

关键词 同翅目,蜡蝉总科,飞虱科,新属,新种。

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1 奇臀飞虱属,新属 *Miranus* Chen et Ding, gen. nov.

模式种: *Stenocranus varians* Kuoh, 1981

头部包括复眼窄于前胸背板。头顶狭长,中长明显大于基宽,侧面观,与额略呈锐角但圆曲相交,基部宽于端部,端缘微突出,中侧脊汇合于头顶端缘,Y形脊明显;额基部窄,端部两侧向外扩展成尖角,成为额的最宽处,额中长为最宽处宽的2.1~2.4倍,侧缘稍波曲,中脊单一;后唇基长大,约为额长的3/4,基部与额的端部近等宽;喙伸近后足转节;触角圆柱形,伸达额唇基缝,第1节长大于端宽,第2节为第1节长的2.0~2.3倍。前胸背板稍短于头顶,侧脊抵近后缘。后足胫距后缘具齿20~30枚。

雄虫臀节短而大,端侧角宽离,各自向下延伸一宽大的刺状突起;尾节后开口长大于宽,侧面观,腹缘远长于背缘,背侧角不突出;膈中等宽,背缘中部隆起,膈孔背缘中部有一小形突起;阳茎细长管状,略弧弯或波曲,具阳茎基片;悬片网球拍状,但腹端开放;阳基侧突狭长,岔离,后面观,近顶端向内侧收狭,端缘多少凹陷,形成短叉,侧面观,其基部强烈弯曲,并远离尾节后缘。

新属与长突飞虱属 *Stenocranus* Fieber 和长唇基飞虱属 *Sogata* Distant 相近似,与前者区别在于触角第1节长明显大于端宽,而不是长宽近相等,额以端部而不是以近中部为最宽,前胸背板侧脊抵近而不是完全伸达后缘,雄虫阳茎端部管状或片状而不呈明显的膜管状,具残存的阳茎基片而不具构造完整的阳茎鞘;与后者的区别主要是雄虫臀节具宽大的刺突,阳茎细长,不成角状弯曲。

该属全世界目前仅包括3种,即本文记述的2新种和1新组合种,分布于东洋区。

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分种检索表

1. 雄虫臀节臀刺突极宽大,后面观伸达尾节腹缘 2
 雄虫臀节臀刺突中等大,后面观仅伸达尾节中部;阳基侧突端部明显分叉;阳茎端半具鳞状纹
 环鳞奇臀飞虱 *M. circus* Chen et Ding
2. 后足胫距具缘齿 26 枚,雄虫右臀刺突端部尖细 片刺奇臀飞虱 *M. varians* (Kuoh)
 后足胫距具缘齿 20 枚,雄虫右臀刺突端部宽,端缘凹陷 葛氏奇臀飞虱 *Miranus kuohi* Chen et Li

1.1 片刺奇臀飞虱,新组合 *Miranus varians* (Kuoh), comb. nov.

Stenocranus pacificus Kirkaldy, Fennah, 1978: 219 (误鉴).

Stenocranus varians Kuoh, 1981: 80.

葛钟麟(1981)发表此种时,将其暂置于长突飞虱属 *Stenocranus* 内,并指出其雄虫臀刺突形状、阳茎构造及阳基侧突外形与长突飞虱属其它已知种显然不同,“是否另立新属值得考虑。”作者经研究,同意葛先生的意见,现以该种作为模式种建立新属即奇臀飞虱属 *Miranus*,以容纳该种和另外的 2 个近缘种。

分布:云南;斐济,越南。

1.2 葛氏奇臀飞虱,新种 *Miranus kuohi* Chen et Li, sp. nov. (图 1~11)

长翅型:体连翅长,♂ 4.8~5.3 mm, ♀ 5.1 mm; 体长,♂ 3.0~3.2 mm, ♀ 3.4 mm; 翅长,♂ 4.0~4.5 mm, ♀ 4.3 mm。

头部包括复眼狭于前胸背板。头顶狭长,中长为基部宽的 1.25 倍,端宽小于基宽(0.58:1.00),端缘微突,侧缘端半近平行,基部向两侧扩宽,Y 形脊明显,中侧脊起自侧缘中部,相向延伸,于头顶端缘汇合成 1 舌状隆脊;额基部狭端部宽,两侧缘波曲,以端部为最宽,中长为最宽处宽的 2.06 倍,基宽为端宽的 0.47 倍,中脊单一;后唇基长大,为额长的 3/4;喙伸近后足转节;触角圆柱形,长伸达额唇基缝,第 1 节长为端宽的 1.6 倍,第 2 节为第 1 节长的 2.3 倍;前胸背板略短于头顶(0.93:1.00),侧脊稍弯曲,几伸达后缘,中胸背板长于前胸背板与头顶长度之和(1.33:1.00);前翅狭长,端部圆尖;后足胫距具缘齿约 20 枚。

雄虫臀节奇特,其腹缘两侧延伸形成宽片突,左侧片突稍弯向外侧,伸达尾节后开口腹缘,端部骤然变细为 1 刺突,亚端部外侧具 1 小齿突,右侧片突稍短,2 端侧角延伸为粗刺突;尾节侧面观背缘短于腹缘,后面观后开口长大于宽,腹缘两侧略成钝角突出,中部宽凹;膈背缘隆起,中部略凹,腹缘中部有 1 小突起深入膈孔;阳茎细长,管状,端部略呈片状扩展,稍扭旋。阳茎基部生 1 长条形的阳茎基片,其端部与膈背相连;阳基侧突后面观端部稍岔离,侧面观从膈孔向后伸出,再折向背方,中部宽阔,端部骤然变细,顶端略分叉。

体黄褐色。惟体背自头顶端缘贯穿前胸背板,至小盾片末端,有 1 乳白色中纵带。头顶侧脊褐色,端半侧脊与中侧脊之间为黑褐色;额中脊及其两侧乳白色,侧脊褐色,中脊与侧脊之间为黑褐色,颊黄褐色略显红褐色,单眼红褐,复眼红褐至暗褐色,内侧较红;前翅淡黄褐色,爪片后缘具乳白色狭边,沿后缘域由基至端有 1 淡褐色至褐色宽纵带,无翅斑;胸部侧板于中足基节附近有 1 黑褐色圆斑,腹部大部分橙红褐色,各节后、侧缘域黑褐色,生殖节褐色,臀突暗褐色,雌虫体色同雄虫,仅腹部淡黄褐色,腹背色略深。

正模♂(GZU),副模 1♀,贵州荔波小七孔(600 m, 25°20'N, 107°48'E), 1995-05-24, 陈祥盛采; 1♂, 贵州荔波茂兰, 1998-10-25, 代仁怀采; 1♂, 贵州荔波永康, 1998-10-26, 李子忠采。

新种与片刺奇臀飞虱 *M. varians* (Kuoh) 很相似,主要可从生殖节各部构造来区别:本种

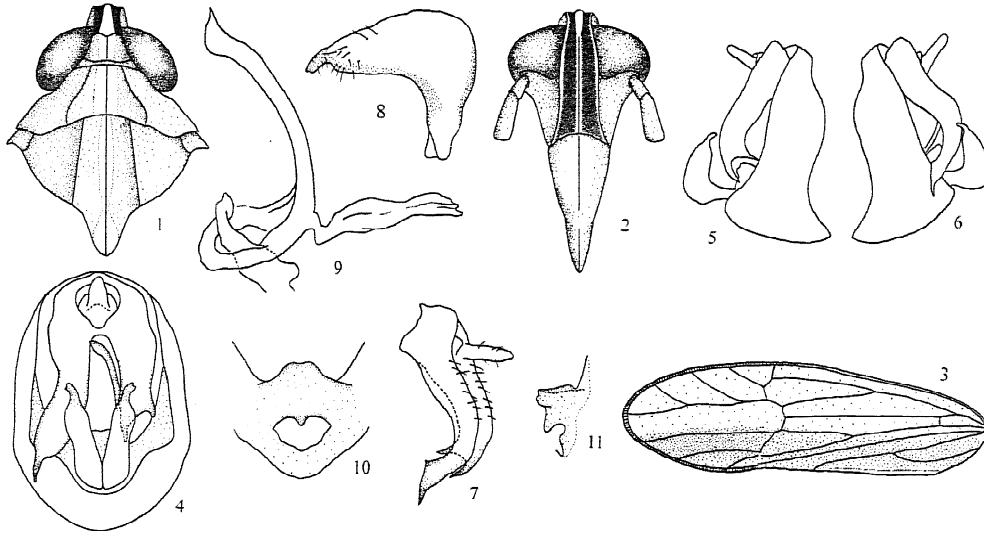


图 1~11 葛氏奇臀飞虱,新种 *Miranus kuohi* Chen et Li, sp. nov.

1. 头胸部背面(head and thorax, dorsal view) 2. 额和唇基(frons and clypeus) 3. 前翅(tegmen) 4. 雄生殖节后面观(male genitalia, posterior view) 5-6. 雄生殖节侧面观(male genitalia, lateral view) 7. 臀节左侧面观(anal segment, left lateral view) 8. 阳基侧突(genital style) 9. 阳基侧面观(aedeagus, lateral view) 10. 膈(diaphragm) 11. 膈突侧面观(process of diaphragm, lateral view)

臀刺突左右不对称,右突稍短,端部两侧角具粗刺突;阳基侧突侧面观宽大,不扭旋。

本种以已故安徽农业大学葛钟麟教授的姓氏命名,以纪念他在我国同翅目飞虱科、叶蝉科分类研究中的贡献。

1.3 环鳞奇臀飞虱,新种 *Miranus circus* Chen et Ding, sp. nov. (图 12~21)

长翅型:体连翅长,♂ 4.9 mm, ♀ 5.2 mm;体长,♂ 3.0 mm, ♀ 3.4 mm;翅长,♂ 4.1 mm, ♀ 4.3 mm。

头部包括复眼狭于前胸背板。头顶狭长,端缘微拱突,中长为基宽的 1.15 倍,基宽大于端宽(1.7:1.0),侧缘端半几平行,向基部扩宽,中侧脊起自侧缘中部略偏基部,相向延伸,后几平行折向头顶端缘,合并形成 1 舌状宽隆脊;额近长方形,基部稍狭,以端部为最宽,中长为最宽处宽的 2.35 倍,中脊单一;后唇基长,几为额长的 3/4;触角圆柱形,伸达额唇基缝,第 1 节长为端宽的 1.6 倍,第 2 节为第 1 节长的 2 倍;前胸背板略短于头顶(0.93:1.00),侧脊略弧形内弯,末端几伸达后缘;中胸背板长为前胸背板与头顶长度之和的 1.3 倍,中脊不伸达小盾片末端;前翅狭长,末端圆;后足胫距具缘齿 30 枚。

臀节短,环状,端侧角各具 1 粗刺突,基部宽离;尾节侧面观背缘短于腹缘,后面观后开口长圆,长大于宽,腹缘宽凹;膈背缘弧形隆起,腹缘具 1 小突;阳茎细长,管状,端半具鳞状齿纹,阳茎鞘不完整,宽片状,端部成指突状,变细处右侧具 1 细长刺突;阳基侧突后面观彼此相对弯曲,端部弯向外侧,分 2 叉。

体黄褐带红褐色。体背自头顶端缘贯穿前胸背板至中胸小盾片末端有 1 白色微黄宽中纵带;头顶侧脊暗红褐色,侧脊与中侧脊之间黑褐色;额沿中脊具白色微黄纵带,侧脊与中脊之间

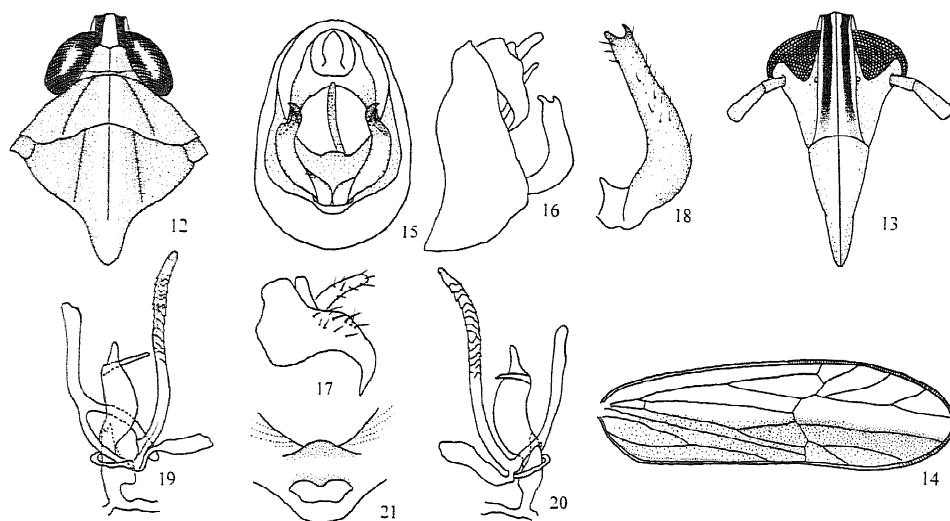


图 12~21 环鳞奇臀飞虱, 新种 *Miranus circus* Chen et Ding, sp. nov.

12. 头胸部背面(head and thorax, dorsal view) 13. 额和唇基(frons and clypeus) 14. 前翅(tegmen) 15. 雄生殖节后面观(male genitalia, posterior view) 16. 雄生殖节侧面观(male genitalia, lateral view) 17. 臀节左侧面观(anal segment, left lateral view) 18. 阳基侧突(genital style) 19~20. 阳茎侧面观(aedeagus, lateral view) 21. 膈(diaphragm)

具黑褐色带纹, 此带纹端部色稍浅, 单眼红褐色, 复眼黑褐色微显红褐色; 前翅淡黄褐色, 爪片后缘具白色狭边, 自后缘域基部至翅端具烟褐色宽纵带; 胸部于中足基节附近有 1 黑色小圆斑, 腹部背、腹面红褐色至深褐色, 生殖节腹面基部色较深, 其余为黄褐色。

寄主: 茅叶荩草 *Arthraxon* sp.。

正模♂(GZU), 副模 7♂♂, 13♀♀, 贵州望谟打易(1200 m, 25°11'N, 106°05'E), 1997-09-24, 陈祥盛采; 7♂♂, 2♀♀ 贵州荔波小七孔, 1998-10-25, 李子忠、汪廉敏采。

新种与片刺奇臀飞虱 *M. varians* (Kuoh) 和葛氏奇臀飞虱 *M. kuohi* Chen et Li 的区别在于雄虫臀节臀刺突较短狭, 后面观仅伸达尾节中部; 阳茎端半具鳞状齿纹, 具不完整的阳茎鞘; 阳基侧突端部分叉较明显。

2 东洋飞虱属, 新属 *Orientoya* Chen et Ding, gen. nov.

模式种: 东洋飞虱, 新种 *Orientoya orientalis* Chen et Ding, sp. nov.

头部包括复眼狭于前胸背板。头顶近方形, 中长稍小于基部宽, 端部宽小于基部宽, 端缘平截, 侧缘弧凹, Y 形脊主干不清晰, 中侧脊起自侧缘近中部, 于头顶端缘汇合; 额于复眼中部处略膨大, 基宽大于端宽, 中长为最宽处宽的 2 倍左右, 中脊于最基部分叉; 唇基基部稍大于额端部; 触角圆柱形, 伸达额唇基缝, 第 1 节长略大于端宽, 第 2 节为第 1 节长的 2.3 倍左右; 前胸背板与头顶近等长, 侧脊不伸达后缘; 中胸背板长于前胸背板与头顶长度之和; 后足胫距具缘齿 18 枚左右。

雄虫臀节具臀刺突; 尾节背侧角向中部反折, 后开口横宽, 腹缘宽凹, 无腹中突; 膈背缘中部呈宽片状显著隆起, 膈孔背向深刻切入膈体; 阳茎管状, 略弯曲; 阳基侧突呈直角状折向两

侧。

新属雄虫尾节后开口形状及阳基侧突彼此强烈岔离这一特征,显示它与古北飞虱属 *Javesella* Fennah、歧飞虱属 *Struebingianella* Wagner 和菱飞虱属 *Rhombotoya* Fennah 的亲缘关系较为接近,但根据其身体大小、头顶形状以及雄外生殖器的各部构造特征,即不难与后 3 属区别。此外,新属区别于近缘属的一个独特的特征是:膈孔背缘向上深度切入膈体。

分布:东洋区(我国目前仅知分布于长江流域以南地区)。

2.1 东洋飞虱, 新种 *Orientoya orientalis* Chen et Ding, sp. nov. (图 22~32)

长翅型♂:体连翅长 3.1 mm, 体长 2.0 mm, 翅长 2.6 mm。

短翅型♂:体长 2.0 mm, 翅长 1.1 mm。

头部包括复眼狭于前胸背板。头顶近方形, 中长略小于基部宽(0.9:1.0), 端部宽小于基部宽(0.8:1.0), 侧缘弧凹, Y 形脊主干不明显, 中侧脊起自侧缘近中部, 汇合于头顶端缘; 额于复眼中部略膨大, 基宽略大于端宽, 中长为最宽处宽的 2.2 倍, 中脊于最基部分叉; 唇基基部稍大于额端部; 触角圆柱形, 伸达额唇基缝, 第 1 节长略大于端宽, 第 2 节为第 1 节长的 2.3 倍; 前胸背板与头顶近等长, 侧脊不伸达后缘; 中胸背板长于前胸背板与头顶长度之和(1.2:1.0); 短翅型前翅伸达第 7 腹节; 后足胫距具缘齿 18 枚。

雄虫臀节呈拱门形, 具 1 对臀刺突, 基部宽离; 尾节侧面观背缘短于腹缘, 背侧角向中部反折, 后缘近腹部弧圆突出, 后面观尾节后开口横宽, 腹缘宽凹; 膈背缘中部呈宽片状显著隆起, 端缘凹入, 膈孔背向深刻凹入, 切入膈腹; 阳茎管状, 基部 1/3 处腹向弯折, 端部膜质, 较尖, 亚端部生 1 粗刺突; 阳基侧突近呈直角横向折向两侧, 外端角尖。

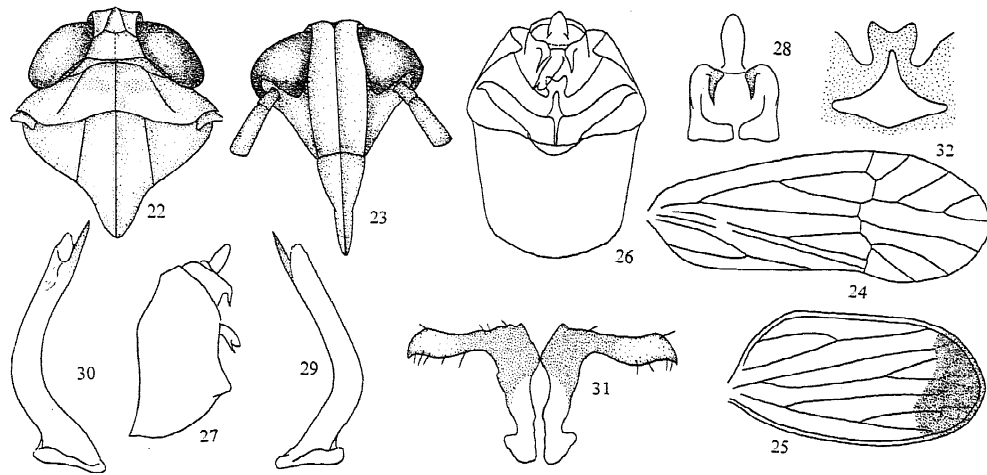


图 22~32 东洋飞虱, 新种 *Orientoya orientalis* Chen et Ding, sp. nov.

22. 头胸部背面(head and thorax, dorsal view) 23. 额和唇基(frons and clypeus) 24. 长翅型前翅(tegmen, macropterous form) 25. 短翅型前翅(tegmen, brachypterous form) 26. 雄生殖节后面观(male genitalia, posterior view) 27. 雄生殖节侧面观(male genitalia, lateral view) 28. 臀节腹面观(anal segment, ventral view) 29~30. 阳茎侧面观(aedeagus, lateral view) 31. 阳基侧突(genital styles) 32. 膈(diaphragm)

体黄褐色。单眼红褐,复眼黑褐色;前翅淡黄褐色透明,短翅型前翅端近1/4暗褐色;腹部背面第1~3节黄褐带橙红色,第4~6节及第7节前半暗褐色至黑褐色,第7节后半及第8节背面黄褐色,腹面各节前半黑褐色,后半及后侧角黄褐色,生殖节背面、臀节、臀突黄褐色,其余部分黑褐色。

雌虫:未知。

正模♂(GZU),贵州荔波永康(620 m, 25°28'N, 108°05'E), 1998-05-29, 陈祥盛采;副模2♂♂(GZU), 贵州荔波茂兰, 1998-10-24, 陈祥盛采;2♂♂(GZU), 贵州思南塘头, 采集时间不详, 陈毓祥采;1♂(NJAU), 浙江天目山, 1984-06-21, 丁锦华采;2♂♂(NJAU), 江苏江浦, 1973-08-21, 丁锦华采。

3 凹缘飞虱属, 新属 *Aoyuanus* Ding et Chen, gen. nov.

模式种:叉茎凹缘飞虱, 新种 *Aoyuanus furcatus* Ding et Chen, sp. nov.

小型种(体长约2 mm)。头部包括复眼窄于前胸背板。头顶中长与基宽近相等,基宽稍大于端宽,端缘拱,中侧脊不在头顶端部相连接;额长约为中部最宽处宽的1.5倍,端部稍宽于基部,侧缘拱,中脊分叉窄,分叉处位于复眼中部水平线的稍上方;触角圆柱形,勉强伸达额的端部,第1节长与端宽相等,第2节约为1节长的2倍。前胸背板短于头顶,侧脊直,几乎伸达后缘。后足刺式5-7-4,后足胫距后缘具齿10枚左右。

雄虫臀节环状,端缘横截,端侧角不伸出,无臀刺突;尾节腹面圆拱,后开口长大于宽,腹缘浅凹,两侧各有一突起,致侧、腹缘交接处深刻凹陷,具小形腹中突;膈背缘呈“V”字形切凹;阳茎侧扁,端部深叉状;悬片环形;阳基侧突小,端半部稍向内弯。

新属与 *Indozurriel* Fennah 亲缘关系较为接近,但从前胸背板宽于头部包括复眼,触角第1节长与端宽相等,额中脊在额的近基部分叉,额端部宽于基部,以及生殖膈沿中线无宽隆脊等特征,即可与后者相区别。

分布:东洋区。

3.1 叉茎凹缘飞虱, 新种 *Aoyuanus furcatus* Ding et Chen, sp. nov. (图33~40)

长翅型♀:体连翅长2.8~2.3 mm,体长2.0~2.2 mm,翅长2.2~2.4 mm

短翅型:体长,♂1.6 mm,♀2.0 mm,翅长,♂0.7 mm,♀0.8 mm。

头顶中长稍短于基部宽(0.88:1.00),两侧缘几平行,基部略扩大,端缘弧形,中侧脊起自侧缘中偏端部,在头顶端部不连接,Y形脊主干弱;额长为中部最宽处宽度的1.6倍,端部宽于基部,侧缘拱,中脊在基部分叉;喙伸达后足转节;触角圆柱形,伸达额唇基缝,第1节长宽近相等,第2节为第1节长的2倍;前胸背板宽于头部包括复眼,短于头顶中长(0.79:1.00),侧脊几乎伸抵后缘;后足胫距具缘齿12枚。

雄虫臀节短,环状,无臀刺突;尾节后开口长大于宽,侧面观,侧缘与腹缘交接处深刻剜凹,后面观,腹缘两侧各有1宽片突,中央有1个三角形小突起;膈宽大,背缘中央呈“V”形刻凹;阳茎自基1/3处分叉,背叉粗长,腹叉细短,端尖;二阳基侧突略呈双掌半合拢状,左右阳基侧突端半不十分对称,左阳基侧突端部相对较尖,内缘1钝角状突起较明显。

体暗黄褐色。头胸部黄褐色或暗黄褐色,触角第1节端部褐色;复眼、喙端部黑褐色;长翅型前翅淡褐色半透明,沿各端脉镶有褐色狭带纹,短翅型前翅端缘具2个不甚明显的褐斑;腹部暗褐色,但侧缘部分为黄褐色;臀节及臀突黄褐色,其余暗褐色。长翅型雌虫头胸部暗黄褐

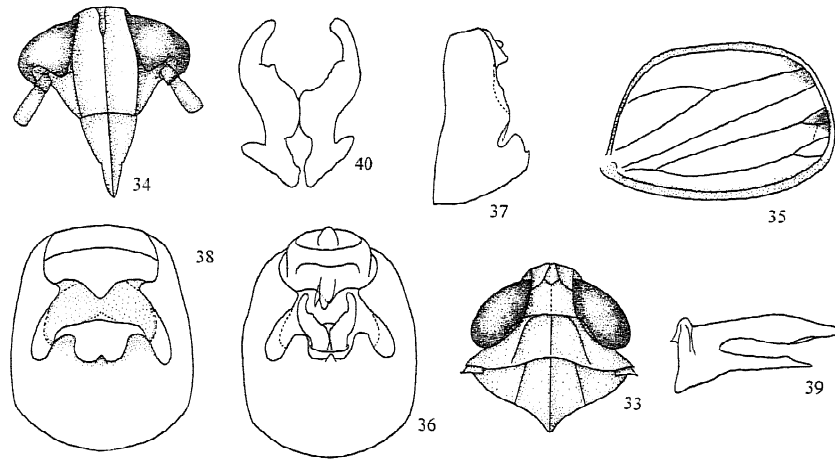


图 33~40 叉茎凹缘飞虱, 新种 *Aoyuanus furcatus* Ding et Chen, sp. nov.

33. 头胸部背面(head and thorax, dorsal view) 34. 额和唇基(frons and clypeus) 35. 短翅型前翅(tegmen, brachypterous form) 36. 雄生殖节后面观(male genitalia, posterior view) 37. 雄生殖节侧面观(male genitalia, lateral view) 38. 膈(diaphragm) 39. 阳茎侧面观(aedeagus, lateral view) 40. 阳基侧突(genital styles)

色, 雌虫腹部色稍淡, 余同雄虫。

正模♂, 副模 11♂♂, 12♀♀(GZU), 贵州思南塘头(600 m, 27°52'N, 108°14'E), 采集时间不详, 陈毓祥采; 9♂♂, 2♀♀(GZU), 湖南武冈云山, 1999-08-18, 陈祥盛、杨琳采; 4♂♂(NJAU), 浙江丽水, 1980-07-06, 许绍朴采。

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参 考 文 献

- Ding, J-H, Kuoh, C-L 1981. New species of *Stenocranus* from China (Homoptera: Delphacidae). *Acta Zootaxonomica Sinica*, 6(1):74-84. [丁锦华, 葛钟麟, 1981. 中国长突飞虱属新种记述. 动物分类学报, 6(1):74~84]
- Distant, W. L. 1906. The fauna of British India, including Ceylon and Burma. *Rhychota*, 3:465-491.
- Fennah, R. G. 1963. New genera of Delphacidae (Homoptera: Fulgoroidea). *Proc. R. Ent. Soc. Lond.*, (B)32(1-2):15-16.
- Fennah, R. G. 1973-75. Homoptera: Fulgoroidea, Delphacidae from Ceylon. *Ent. Scand. Suppl.*, 4:79-136.
- Fennah, R. G. 1978. Fulgoroidea (Homoptera) from Viet-mam. *Annales Zoologici Warszawa*, 34(9): 207-279.
- Kirkaldy, G. W. 1907. Leafhoppers supplement (Hemiptera). *Bull. Hawaiian Sugar Pl. Assoc. Div. Ent.*, 3:1-186.
- Wagner, W. 1963. Dynamische Taxonomie, angewandt auf die Delphaciden Mitteleuropas. *Mitt. Hamburg Zool. Mus.*, 60:111-180.
- Yang, C-T 1989. Delphacidae of Taiwan (II) (Homoptera: Fulgoroidea). *NSC Special Publication*, 6:1-334.

THREE NEW GENERA AND FOUR SPECIES OF DELPHACIDAE (HOMOPTERA: FULGOROIDEA)

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Abstract

In the present paper three new genus and four new species of Delphacidea are described. One new combination, *Miranus varians* (Kuoh) is given. The type specimens are deposited in the Institute of Entomology, Guizhou University (GZU) and Department of Plant Protection, Nanjing Agricultural University (NJAU), China.

1 *Miranus* Chen et Ding, gen. nov.

Type species: *Stenocranus varians* Kuoh, 1981

Head including eyes narrower than pronotum. Vertex submedially longer than wide at base obviously, narrower at apex than at base, apical margin produced slightly. Submedian carinae uniting at apex, Y-shaped carina distinct. Frons narrower at base than at apex, lateroapical angles expanded laterad, frons in middle line longer than widest part about 2.1-2.4:1.0, widest at apex. Lateral carinae sinuate slightly, median carina simple. postclypeus larger, as wide at base as apex of frons. Rostrum almost reaching to post-trochanters. Antennae cylindrical, reaching to frontoclypeal suture, first segment longer than wide at apex, shorter than second segment about 1.0:2.0-2.3. Pronotum shorter than vertex slightly, with lateral carinae almost attaining hind margin. Post-tibial spur with 20-30 teeth.

Anal segment of male short and large, lateroapical angles each produced into a large spinose process, widely separated, directed ventrad. Pygofer in profile distinctly wider ventrally than dorsally, laterodorsal angles not produced, in posterior view with opening longer than wide. Diaphragm moderately broad, with dorsal margin roundly produced, opening for genital styles with dorsal margin produced downward medially. Phallus long tubular, simple, with a basal lobe. Suspensorium tennis racket-like, opening ventrally. Genital styles rather long, separated each other, in posterior view, narrowing near apex, apical margin concave slightly, in profile view, the base of genital styles curved strongly, and far from the posterior margin of pygofer.

This new genus is similar to *Stenocranus* Fieber and *Sogata* Distant, but can be separated from *Stenocranus* Fieber by antennae with first segment longer than wide at apex obviously, frons widest at apex, pronotum with lateral carinae near hind margin but not reaching there, male without developed phallobase. It differs from *Sogata* Distant in anal segment of male with large spinous processes, phallus long tubular, not curved angle-shaped.

1.1 *Miranus varians* (Kuoh), comb. nov.

Stenocranus pacificus Kirkaldy, Fennah, 1978:219 (misidentified).

Stenocranus varians Kuoh, 1981:80.

Distribution. China (Yunnan), Fiji, Vietnam.

1.2 *Miranus kuohi* Chen et Li, sp. nov. (Figs. 1-11)

Macrop. f. Body length ♂ 4.8-5.3 mm, ♀ 5.1 mm; including teg. ♂ 3.0-3.2 mm, ♀ 3.4 mm; tegmen length ♂ 4.0-4.5 mm, ♀ 4.3 mm.

This new species is closely related to *M. varians* (Kuoh), but differs from the latter in anal

segment of male with asymmetrical processes, right process shorter, which with 2 spinose processes at apex; genital style broader in profile view, not twisted.

Holotype ♂ (GZU), Xiaoqikong of Libo (600 m, 25°20'N, 107°48'E), Guizhou Province, 24 May 1995, coll. CHEN Xiang-Sheng, paratypes 1 ♀, same as holotype; 1 ♂, Maolan of Libo, 25 Oct 1998, coll. DAI Ren-Huai, 1 ♂, Yongkang of Libo, 26 Oct. 1998, coll. LI Zi-Zhong.

1.3 *Miranus circus* Chen et Ding, sp. nov. (Figs. 12-21)

Macrop. f. Body length ♂ 4.9 mm, ♀ 5.2 mm; including teg. ♂ 3.0 mm, ♀ 3.4 mm; tegmen length ♂ 4.1 mm, ♀ 4.3 mm.

This new species is similar to *M. kuohi* Chen et Li and *M. kuohi* Chen et Li, but differs from the latter in processes of anal segment shorter and narrower; phallus with scale-like veins at apical half, and with remnant phallobase at base; genital style forked at apex.

Holotype ♂ (GZU), Dayi of Wangmo (1 200 m, 25°11'N, 106°05'E), Guizhou Province, 24 Sep. 1997, coll. CHEN Xiang-Sheng, paratypes 7 ♂♂, 13 ♀♀, same as holotype; 7 ♂♂, 2 ♀♀, Xiaoqikong of Libo, Guizhou Province, 25 Oct. 1998, coll. LI Zi-Zhong and WANG Lian-Min.

Host plant: *Arthraxon* sp.

2 *Orientoya* Chen et Ding, gen. nov.

Head including eyes narrower than pronotum. Vertex shorter than wide at base, slightly narrower at apex than at base, apical margin truncate. Submedian carinae uniting at apex, Y-shaped carina unclear. Frons narrower at apex than at base, widest at near middle, frons longer in middle line than wide at widest part about 2.0:1.0, median carina forked at extreme base. Postclypeus wider at base than frons at apex. Antennae cylindrical, reaching to frontoclypeal suture, first segment longer than wide at apex slightly, shorter than second segment about 1.0:2.3. Pronotum as long as vertex, with lateral carinae not attaining hind margin, Post-tibial spur with about 18 teeth.

Anal segment of male with two processes. Pygofer with laterodorsal angles reflected mesad, in posterior view with opening wider than long, without medioventral process. Diaphragm with dorsal margin lobe-like produced and pigmented, opening for genital styles with dorsal margin produced dorsad medially. Aedeagus tubular, arched upward slightly. Genital styles turned right-angle-like laterad.

This new genus is similar to *Javesella* Fennah, *Struebingianella* Wagner and *Rhombotoya* Fennah in the shape of pygofer in posterior view and genital styles separated from each other strongly, but can be distinguished from them by body size, shape of vertex and structure of male genitalia. It is most easily recognizable by opening for genital styles with dorsal margin strongly produced dorsad.

Type species: *Orientoya orientalis* Chen et Ding, sp. nov.

2.1 *Orientoya orientalis* Chen et Ding, sp. nov. (Figs. 22-32)

Macrop. f. ♂. Body length 2.0 mm; including teg. 3.1 mm; tegmen length 2.6 mm.

Brachyp. f. ♂. Body length 2.0 mm; tegmen length 1.1 mm.

Holotype ♂ (GZU), Yongkang (620 m, 25°28'N, 108°05'E), Libo, Guizhou Province, 29 May 1998, coll. CHEN Xiang-Sheng; paratypes 2 ♂♂ (GZU), Maolan, Libo, Guizhou Province, 24 Oct. 1998, coll. CHEN Xiang-Sheng; 2 ♂♂ (GZU), Tangtou, Sinan, Guizhou Province, date unclear, coll. CHEN Yu-Xiang; 1 ♂ (NJAU), Tianmu Mountain, Zhejiang Province, 21 Jun. 1984, coll. DING Jin-Hua; 2 ♂♂ (NJAU), Jiangpu, Jiangsu Province, 21 Jul.

1973, coll. DING Jin-Hua.

3 *Aoyuanus* Ding et Chen, gen. nov.

Small size (body length about 2.0 mm). Head including eyes narrower than pronotum. Vertex as long submedially as wide at base, narrower at apex than at base, apical margin rounded, submedian carinae not uniting at apex. Frons longer in middle line than wide at widest part about 1.5:1.0, wider at apex than at base slightly, lateral carinae convex, median carina forked above the level line of middle of eyes. Antennae cylindrical, reaching to frontoclypeal suture, first segment as long as wide at apex, shorter than second segment about 1:2. Pronotum shorter than vertex, with lateral carinae almost attaining hind margin. Spinal formula of hind leg 5-7-4. Post-tibial spur with about 10 teeth.

Anal segment of male ring-like, apical margin truncated, lateroapical angles not produced, without process. Pygofer in posterior view with opening longer than wide, ventral margin concave slightly, with lobe-like process on each side, medioventral process small. Diaphragm with dorsal margin incised, V-like. Aedeagus laterally compressed, forked at about one-third from base. Suspensorium ring-like. Genital styles small, with apical half part turned mesad.

This new genus is related to *Indozurriel* Fennah, but differs from the latter in head including eyes narrower than pronotum; antennae with first segment as long as wide at apex; frons with median carina forked near base, wider at apex than at base; diaphragm without broad longitudinal carina.

Type species: *Aoyuanus furcatus* Ding et Chen, sp. nov.

3.1 *Aoyuanus furcatus* Ding et Chen, sp. nov. (Figs. 33-40)

Macrop. f. Body length ♀ 2.0-2.2 mm; including teg. ♀ 2.8-3.0 mm; tegmen length ♀ 2.2-2.4 mm.

Brachyp. f. Body length ♂ 1.6 mm, ♀ 2.0 mm; tegmen length ♂ 0.7 mm, ♀ 0.8 mm.

Holotype ♂ (GZU), Tangtou (600 m, 27°52'N, 108°14'E), Sinan, Guizhou Province, date unclear, coll. CHEN Yu-Xiang; paratypes 11 ♂♂, 12 ♀♀ (GZU), data same as for holotype; 9 ♂♂, 2 ♀♀ (GZU), Yun Mountain, Wugang, Hunan Province, 18 Aug. 1999, coll. CHEN Xiang-Sheng and YANG Lin; 4 ♂♂ (NJAU), Lishui, Zhejiang Province, 6 Jul. 1980, coll. XU Shao-Pu.

Key words Homoptera, Fulgoroidea, Delphacidae, new genus, new species.