

A NEW CHINESE RECORD SPECIES *TORYMUS BEDEGUARIS* (HYMENOPTERA, TORYMIDAE)

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Abstract A newly recorded species *Torymus bedeguaris* (L.) is reported in China for the first time. The species was reared from gall of *Diplolepis rosae* (L.) on *Rosa serrata* X *R. rugosa* (Rosaceae: *Rosa*). Morphological descriptions, hosts and distributions are provided. All the specimens are deposited in the Zoological Museum, Institute of Zoology, Chinese Academy of Sciences and herbarium of Lanzhou Agro-technical Research and Popularization Center.

***Torymus bedeguaris* (Linnaeus), 1758 New record to China** (Figs 1–7)

Head in front view (Fig. 1) about 1.23 times as high as wide; eye height about 3 times as long as malar space. Head in dorsal view about 2.13 times as long as wide; occipital carina distinct. Base of scutellum (Fig. 2) narrow but not pointed, frenal line absent. Propodeum (Fig. 4) reticulate without median carina. Cubital vein (Fig. 3) with row of setae basally, basal vein and costal cell with conspicuous setal rows. Fore coxae (Fig. 5) essentially green, hind coxae with dorsal setae, hind tibial spur about 1/2 shortest length of basitarsus. Ovipositor 2.11 times length

Key words Hymenoptera, Torymidae, *Torymus*, new record, China.

of abdomen.

Torymus bedeguaris is similar to *T. solitarius* and *T. chrysochlorus*. *T. bedeguaris* differs from *T. chrysochlorus* in having the hind coxae with dorsal setae and the intermalar distance 2 times as long as malar space; but *T. chrysochlorus* without dorsal setae on hind coxae, intermalar distance 2.5 times as long as malar space. *T. bedeguaris* can be separated from *T. solitarius* by the green fore coxae, the orange-yellow femora, the stigmal club obviously darker brown than the marginal vein, and the hind tibial spur about 1/2 the length of the basitarsus; but *T. solitarius* with fore coxae mostly yellow, femora pale yellow, vein concolorous light brown, and the hind tibial spur about 1/3 the length of the basitarsus (Grissell, 1976).

Specimens examined. 12 ♀♀, 2 ♂♂, Gansu, Lanzhou, July 2011, ex. galls of *Diplolepis rosae* (Linnaeus), coll. ZHANG Wen-Li; 3 ♀♀, 1 ♂, Anhui, Anqing, Taihu Xian, Niuzhen Zhen, Oct. 2011, ex. galls of *Diplolepis rosae* (Linnaeus), coll. YANG Xiao-Hui.

中国长尾小蜂属（膜翅目，长尾小蜂科）一新纪录种

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摘要 记述长尾小蜂科 Torymidae 长尾小蜂属 *Torymus* 中国 1 新纪录种，玫瑰瘿长尾小蜂 *Torymus bedeguaris* (L.)。该种是从苦水玫瑰的重要害虫玫瑰梨瘿蜂 *Diplolepis rosae* (L.) 的虫瘿中育出。提供了形态描述、寄主、分布及形态特征图。研究标本保存在中国科学院动物研究所动物标本馆及兰州市农业科技研究推广中心标本室。

关键词 膜翅目，长尾小蜂科，长尾小蜂属，新纪录，中国。

中图分类号 Q969.545.6

苦水玫瑰属多枝重瓣红玫瑰，是钝齿蔷薇 *Rosa setata* 和中国传统玫瑰 *Rosa rugosa* 的自然杂交种，其枝叶茂盛，花朵繁多，色泽鲜艳，香气浓郁，具有抗旱耐寒、抗病虫害能力强、适应性广、单位面积产花量高、出油率高（周学森等，2009）、香气质量好等特点，被冠以“金花”的美誉（赖丽芳，2003）。近年来随着科技的发展，玫瑰鲜花、花蕾及提炼的玫瑰油、玫瑰浸膏等产品广泛应用于新型化工、医药、食品、医疗保健、化妆品等行业，其已成为当地的支柱产业

（徐常胜，2002）。最早于 2005 年在兰州新区中川镇何家梁、兔墩等村发现玫瑰梨瘿蜂 *Diplolepis rosae* (L.)，其雌成虫随机在玫瑰新发叶芽及花芽上产卵，幼虫孵化后刺激植物组织产生刺状瘿瘤（图 8）。危害新芽使新芽形成瘿瘤会影响新枝的伸长，从而影响树冠扩大；危害花蕾使花蕾形成虫瘿，影响花蕾产量。且每一代瘿蜂可以在虫瘿中生活 7 个月至 3 年，幼虫在虫瘿中化蛹，成虫在虫瘿中取食植物组织（马双敏等，2008）。近年来经田间调查发现玫瑰梨瘿蜂被小蜂寄生

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(图9),寄生率在30%以上;这种从玫瑰梨瘿蜂的虫瘿中羽化出的小蜂,经鉴定为长尾小蜂科中国1新纪录种,玫瑰瘿长尾小蜂 *Torymus bedeguaris* (L.),在玫瑰梨瘿蜂的生物防治中有重要作用。

玫瑰瘿长尾小蜂 *Torymus bedeguaris* (L.) 属于长尾小蜂属 *Torymus*。截至2012年,长尾小蜂属世界已知406种 (Noyes, 2012),中国已知7种 (Noyes, 2002; 赵亚雪等, 2009)。本文简要记述该属和该中国新纪录种的相关信息,研究标本保存在中国科学院动物研究所动物标本馆及兰州市农业科技研究推广中心标本室。

长尾小蜂属 *Torymus* Dalman, 1820

- Callinome* Spinola, 1811: 148. Type species: *Idneumon bedeguaris* L. (desig. by Curtis, 1835: 552). [Suppressed by Int. Comm. Zool Nomen., Opinion. 1944: 155]
- Misocampe* Latreille, 1818: 213. Type-species: *Idneumon bedeguaris* L. (desig. by Gahan and Fagan, 1923: 91). [Suppressed by Int. Comm. Zool Nomen., Opinion. 1944: 155]
- Torymus* Dalman, 1820: 135, 178. Type species: *Idneumon bedeguaris* L. (desig. by Ashmead, 1904: 242). Dalla Torre, 1898: 598; Ashmead, 1904: 242; Grissell, 1976: 1-120 (Key to 70 species); Kamijo, 1982: 509-510 (Key to 4 species); Narendran, 1994: 20-23 (Key to 3 species); Grissell, 1995: 273-290; Graham & Gijswijt, 1998: 16-49 (Key to 154 species); Zerova & Seryogina, 2003: 3-83.
- Diomorus* Walker, 1834: 159. Type-species: *Diomorus nobilis* Walker (monotypic). [Synonymized by Graham & Gijswijt, 1998]
- Syntomaspis* Förster, 1856: 43-44. Type-species: *Torymus eurynotus* Förster (desig. by Gahan and Fagan, 1923: 139). [Synonymized by Huber, 1927]
- Lioterphus* Thomson, 1876: 60, 99. Type-species: *Torymus pallidicornis* Boheman (desig. by Ashmead, 1904: 241). [Synonymized by Grissell, 1976]
- Callimomus* Thomson, 1876: 60, 77. Type-species: *Callimomus scaposus* Thomson (desig. by Ashmead, 1904: 241). [Synonymized by Schmiedeknecht, 1914]
- Nannoceris* Mayr, 1885: 159, 195. Type-species: *Nannoceris biarticulatus* Mayr (monotypic). [Synonymized by Bouček, 1993]
- Hemitorymus* Ashmead, 1904: 243. Type-species: *Hemitorymus thoracicus* Ashmead (monotypic). [Synonymized by Gahan, 1948]
- Parasympiesis* Brèthes, 1927: 328. Type-species: *Parasympiesis cecidiola* Brèthes (monotypic). [Synonymized by Burks & Gibson & La Salle, 2005]

属征 体长1~6mm (不包括产卵器),通常呈金属绿或金属蓝 (个别种类黄色或偶带黑色)。头横宽,前面观颜面略瘪,颊不长;复眼大,卵圆形;触角着生于颜面中部,触式11173,环节短小,索节一般长大于宽。胸微隆起,常具网状刻纹,极少数具有大的刻点;盾纵沟深,小盾片长卵圆形,后横沟明显或缺失,小盾片后缘常稍突出于后胸背板;中胸后侧片与后胸侧片之间的缝合处为波浪形;并胸腹节略倾斜、短而光滑;后足基节明显膨大,后足胫节2距;前翅缘脉较后缘脉长,后缘脉常大于痣脉的2倍。柄后腹无明显腹柄,第1~4背板后缘中央具缺刻,产卵器鞘小于或大于体长。

长尾小蜂属与 *Austorymus* 属很相似,主要区别为: *Austorymus* 属胸部背面除中胸盾片具突脊的横纹外,无刻纹和刻点;小盾片光滑,具后横沟;前翅痣脉与翅前缘垂直。长尾小蜂属胸部背面具刻纹或刻点;小盾片前半部不光滑;前翅痣脉与翅前缘不垂直,所成角度通常小于90° (Bouček, 1988)。

生物学 该属少数种类为植食性,取食苹果、梨等种子 (Narendran, 1994);多数种类外寄生于形成虫瘿的瘿蚊科 *Cecidomyiidae* 和瘿蜂科 *Cynipidae*;一小部分寄生于形成虫瘿的木虱科 *Psyllidae*、广肩小蜂科 *Eurytomidae* 和实蝇科 *Tephritidae*。其它也有记录该属种类从蝉科 *Cicadidae* 的卵,鞘翅目 *Coleoptera*、鳞翅目 *Lepidoptera* 和介壳虫科 *Coccidae* 的幼虫 (中孵化出 (Nikol'skaya, 1952))。

分布: 该属世界广布,在古北界和新北界种类分布最多,还有部分种类分布在东洋界、新热带界、非洲界和澳洲界 (Noyes, 2002)。

玫瑰瘿长尾小蜂 *Torymus bedeguaris* (Linnaeus), 1758 中国新纪录 (图1~7)

- Idneumon bedeguaris* L., 1758: 567. Lectotype: ♀, NHRM, designated by Graham & Gijswijt, 1998.
- Cynips bedeguaris* Geoffroy, Fourcroy, 1785: 380. Synonymized by Graham, 1994.
- Cynips viridis* Geoffroy, Fourcroy, 1785: 380. Synonymized by Graham, 1994.
- Cynips rosae aurata* Christ, 1791: 479. Synonymized by Graham & Gijswijt, 1998.
- Torymus bedeguaris* (L.) Nees, 1834: 56. New combination for *Idneumon bedeguaris* Linnaeus.
- Torymus elegans* Boheman, 1834: 352. Synonymized by Thomson, 1876.
- Torymus försteri* Ratzeburg, 1844: 178. Synonymized by Dalla Torre, 1898.
- Callimome divinus* Walker, 1871: 34. Synonymized by Grissell, 1995.
- Callimome rosarum* Hoffmeyer, 1929: 334. Synonymized by Graham & Gijswijt, 1998.

雌 体长2.5~4.5mm (不含产卵器)。体 (图5) 绿色具金属光泽,头顶、胸部具蓝紫色反光,柄后腹具铜色光泽。触角柄节基部黄色,其余黑色。前、中足基节与体同色,其余黄色,前足腿节略带黑色,中足腿节中部黑色,后足基节与体同色,腿节黑色,胫节褐色,跗节黄色。翅透明,翅脉浅褐色,前缘脉和痣脉褐色。

头前面观 (图1) 宽为高的1.23倍,颊外缘向中会聚不明显,下脸较上脸被毛浓密。复眼间距与复眼高相当,两复眼内缘不平行,向腹面外侧渐宽;颞眼距约为眼高的1/3,两颞眼沟下缘间距为颞眼距的2.36倍。触角着生位高于复眼下缘线;唇基下缘平截,口上沟明显。头背面观后头脊明显,头宽为长的2.13倍;上颊为复眼长的0.25倍;POL为OOL的2倍。触角 (图1) 棒节不膨大,触角柄节不伸及中单眼,长为宽的2.88倍,柄节长为复眼高的0.64倍;梗节与鞭节长之和大于头宽,为头宽的1.3倍;梗节侧面观长为宽的1.5倍;环节长为宽的0.5倍;F1长为宽的1.17倍,F1长为梗节长的0.78倍;F2~F5长略大于宽,约为宽的1.14倍;F6~F7呈方形;棒节长为宽的2.38倍,短于F5~F7长之和;各索节具2轮感觉毛。

中躯被毛。前胸背板长为宽的0.15倍,中胸盾片 (图2) 长为宽的0.75倍,盾纵沟完整;小盾片具网纹,后端光滑,长为宽的1.24倍,无小盾片横沟,沟后片不明显;小盾片边缘狭窄,具围缘刻点。并胸腹节 (图4) 光滑具强烈反光,沿基部具成排的凹孔,表面具细微的网纹;无中脊、侧褶,短于中胸盾片长之半。前翅 (图3) 长为宽的2.26倍,具透明斑;前缘室沿上缘具成排的毛,基室被毛,基脉、肘

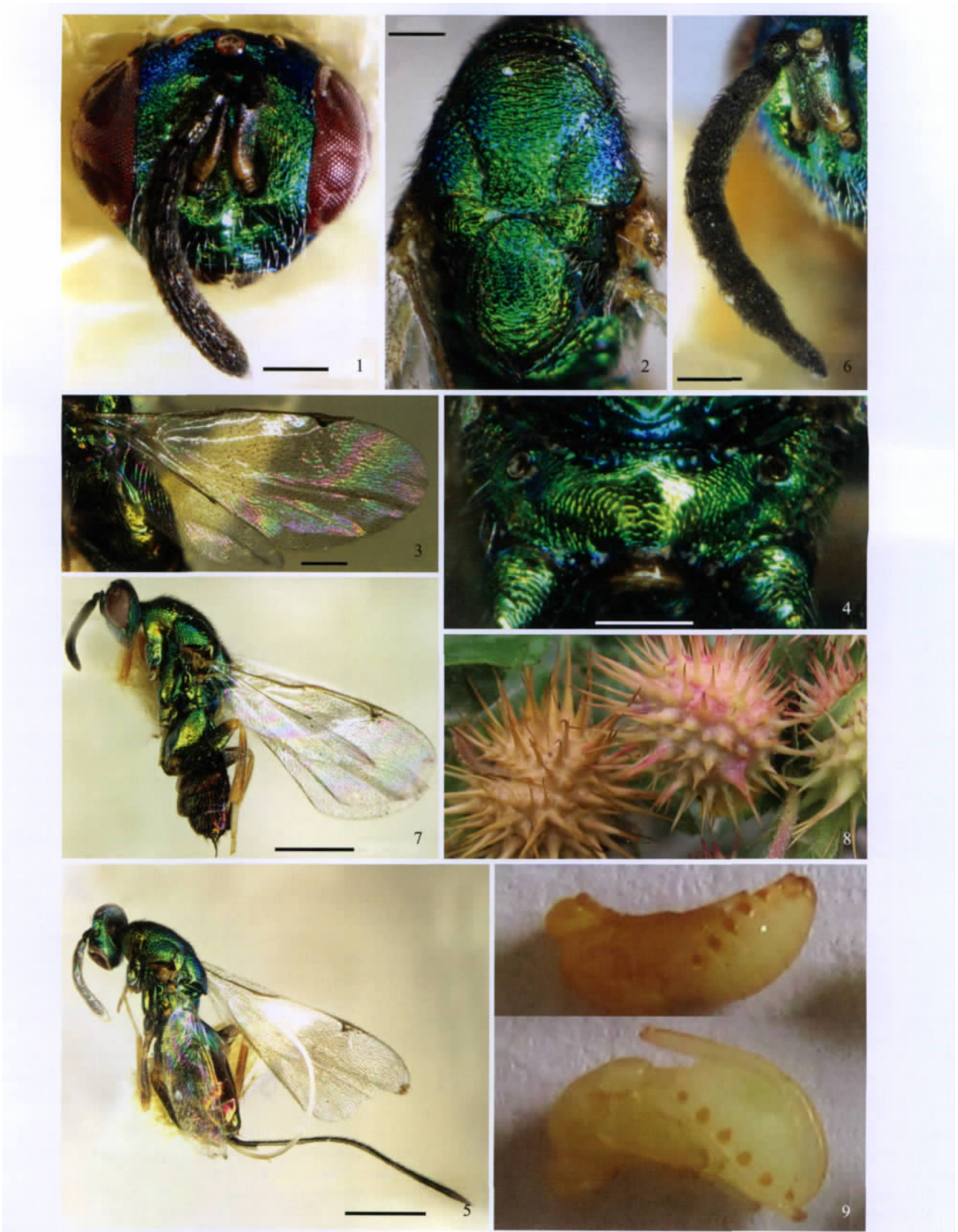


图1~7 玫瑰瘦长尾小蜂 *Torymus bedeguaris* (L.) 图8 玫瑰梨瘦蜂 *Diplolepis rosae* (L.) 虫瘿 图9 玫瑰瘦长尾小蜂 *Torymus bedeguaris* (L.) 幼虫

1~5. ♀ 6~7. ♂ 1. 头前面观 (front view of head) 2. 胸背面观 (dorsal view of thorax) 3. 前翅 (fore wing) 4. 并胸腹节 (propodeum) 5. 体侧面观 (lateral view of body) 6. 触角 (antenna) 7. 体侧面观 (lateral view of body) 比例尺 (scale bars): 1~2, 4, 6 = 0.1 mm; 3 = 0.2 mm; 5, 7 = 0.5 mm

脉完整,缘脉为后缘脉的 2.76 倍,为痣脉的 8.29 倍。后足基节长为宽的 2.3 倍,外表面具网状刻纹,近基部区域背面具稀毛,近端部区域腹面具密毛;后足腿节长为宽的 4.25 倍,近末端无齿;后足腿节长距为胫节宽的 1.71 倍,短距长为长距的 0.83 倍。

柄后腹无腹柄,长为宽的 2.85 倍,产卵器是柄后腹的 2.11 倍。

雄 体长(图 7) 2~3 mm。F1~F3(图 6) 正方形, F4~F7 宽略大于长,其余特征与雌虫相似。

检视标本: 12 ♀♀, 2 ♂♂, 甘肃兰州, 2011-07, ex. 玫瑰梨瘦蜂虫瘿 *Diplolepis rosae* (L.), 张文利采; 3 ♀♀, 1 ♂, 安徽安庆, 太湖县牛镇镇, 2011-10, ex. 玫瑰梨瘦蜂虫瘿 *Diplolepis rosae* (L.), 2012-03, 羽化, 杨筱慧采。

鉴别特征 新纪录种与 *T. chrysochlorus* (Osten-Sacken) 和 *T. solitarius* (Osten-Sacken) 相似。与 *T. chrysochlorus* 的主要区别为: *Torymus bedeguaris* 后足基节背面具刚毛, 颧眼间距约为颧眼距的 2 倍; 而 *T. chrysochlorus* 后足基节背面不具刚毛, 颧眼间距约为颧眼距的 2.5 倍。与 *T. solitarius* 的主要区别为: *Torymus bedeguaris* 前足基节绿色, 腿节橘黄色, 翅痣深褐色, 明显比缘脉颜色深, 后足腿节距约为基附节长度的 1/2; 而 *T. solitarius* 前足基节大部分为黄色, 腿节浅黄色, 翅脉浅褐色, 后足腿节距约为基附节长度的 1/3 (Grissell, 1976)。

生物学 文献记载该种主要寄生于膜翅目瘦蜂科, 涉及瘦蜂科 13 种; 其次寄生于瘦蚊科和姬蜂科 (各有 1 种记录) (Noyes, 2002)。其中, 瘦蜂科种类均为植食性产生虫瘿, 虫瘿形成过程中, 致瘦昆虫的幼虫造成周围部分细胞和组织的异常生长, 这肯定会阻碍寄主植物生长, 正常生理活动, 如光合作用, 或者造成损伤 (王光钺等, 2010)。

分布: 中国 (甘肃); 古北区, 新北区 (Noyes, 2002)。

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