



A new species of *Arbomia* Sato & Wang (Lepidoptera, Geometridae, Ennominae) from Guangxi, Southern China

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The genus *Arbomia* was described as a monotypic genus by Sato & Wang, 2004, based on *Arbomia kishidai* Sato & Wang, 2004 from China (Guangdong) and Vietnam. Since then, no new species of *Arbomia* has been described. Recently we have examined all the specimens of *Arbomia* in IZCAS, including those collected during recent expeditions, and have found one new species. The purpose of this paper is to describe the new species *A. trigonoprocessa* sp. nov., to reported *Arbomia kishidai* for the first time from the provinces of Zhejiang, Hunan, Fujian, and Guangxi of China, and to provide diagnostic characters and illustrations of the external features and genitalia of the two *Arbomia* species.

Specimens used in this study are deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZCAS) and the South China Agricultural University, Guangzhou, China (SCAU). Terminology for the genitalia is based on Pierce (1914, reprint 1976), Klots (1970) and Nichols (1989). Photographs of the moths were taken with digital cameras. Composite images were generated using Auto-Montage software version 5.03.0061 (Synoptics Ltd). The plates were compiled using Adobe Photoshop software.

Arbomia trigonoprocessa Jiang, Xue & Han sp. nov.

Figs 1, 2, 5, 6

Description. *Head.* Antenna with white scales dorsally, about two-fifths length of forewing, bipectinate, tapering, very shortly bipectinate in female. Frons black, not protruding. Labial palpus greyish black, not extending beyond frons. Vertex pale grey. *Thorax.* Patagium black. Tegula black, mixed with greyish white scales at both ends and at middle. Metanotum black, with white scales at two sides and at posterior end. Hind tibia not dilated, with two pairs of spurs in both sexes, without hair-pencil. Forewing length: male 20–22 mm; female 23 mm. Forewing outer margin straight, hindwing rounded. Wings white tinged with pale yellowish brown, densely covered with black scales. Forewing with antemedial line black, double and wavy; medial line black, protruding outwards among M veins; discal spot black and rounded; postmedial line black, dentate, protruding outwards between costa and M₃, strongly incurved below M₃, meeting medial line between CuA₂ and 2A; an indistinct black band present outside postmedial line; submarginal line white and serrate; a row of black dots present inside submarginal line; terminal line present as a series of short black strips between veins; fringes yellowish brown, interrupted at veins by black scales. Hindwing with medial line wavy; discal spot smaller and less distinct than that of forewing; postmedial line double and dentate; other striations similar to those of forewing. Underside with discal spots distinct, present as black short strip, other striations less distinct than those on upperside. Forewing with a basal fovea in male; Sc, R₁ and R₂ separate. *Abdomen.* Abdominal segments yellowish brown mixed with black scales. Third sternite of male abdomen with a setal comb. *Male genitalia.* Uncus almost triangular, square and shallowly bifurcate at apex, with an elliptical dorsal process that bearing long setae. Gnathos with a small, acute apically median process. Valva narrow at terminal half, rounded apically; costa sclerotized, almost straight, with setae at terminal half; a sclerotized band extending from middle of inner side of costa to apex of sacculus, a short digitiform process with short spines formed on inner surface of apex of sacculus; saccus semicircle; juxta bifid at apical two fifth, and forming a rounded concavity; aedeagus short and stout, with a triangular process posterior; vesica partly sclerotized, with 6–8 short and stout spine-like cornuti. *Female genitalia.* Lamella postvaginalis composed of three lobes, central lobe rounded anteriorly, tapered to posterior end; lateral lobes oval; lamella

antevaginalis with dentate margin. Ductus bursae barely differentiated from corpus bursae, with a short antrum posteriorly. Corpus bursae with a signum anteriorly; signum weakly sclerotized, with two teeth centrally.

Diagnosis. This species is difficult to distinguish from *A. kishidai* (figs 3, 4, 7, 8) on external characters. However, the male genital structures differ substantially: the basal projection of the costa is less distinct than that of *A. kishidai*; a short digitiform process is formed on the inner surface of the apex of sacculus, while in *A. kishidai*, a cluster of short spines are present in the same area; the aedeagus is distinctive in having a triangular process posteriorly, which is absent in *A. kishidai*. In the female genitalia, the posterior half of the central lobe of the lamella postvaginalis is triangular, while in *A. kishidai*, it is rounded; the lamella antevaginalis is narrower.



FIGURES 1–8. 1–4. Adults of *Arbomia*. 1, *A. trigonoprocessa* sp. nov., male, holotype; 2, ditto, underside; 3, *A. kishidai*, male, holotype; 4, ditto, underside; 5–8. Genitalia of *Arbomia*. 5, *A. trigonoprocessa* sp. nov., male, holotype; 6, ditto, female, paratype; 7, *A. kishidai*, male; 8, ditto, female.

Type material. Holotype, ♂, CHINA: Guangxi (IZCAS): Jinxiu, Shengtangshan, 1900 m, 17.V.1999, coll. Yuan Decheng. Paratypes: Guangxi (IZCAS): 1♂, Jinxiu, Shengtangshan, 1900 m, 17.V.1999, coll. Zhang Yanzhou; 1♀, Jinxiu, Yinshanzhan, 1100 m, 10.V.1999, coll. Li Wenzhu.

Distribution. China (Guangxi).

Etymology. The specific name is from the Latin prefix *trigono-* and the word *processus*, which means triangular process, in reference to the process of the aedeagus.

Remarks. After examining the holotype of *A. kishidai* (S.China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 18–22.VI.2003, K.Yazaki leg.) in SCAU and specimens in IZCAS of *A. kishidai* (2♂1♀, Zhejiang, Qingyuan, Fengyangshan, Datianping, 6–10.VIII.2003, 1290 m, coll. Han Hongxiang; 1♀, Hunan, Daoxian, Tiejiangchang, 18.VIII.1982; 1♂1♀, Fujian, Sanming, 16.VII.1981, 18.VI.1981; 1♀, Guangdong, Ruyuan, Nanling, Baohuzhan, 1020 m, 16–20.VII.2008, coll. Chen Fuqiang; 1♂, Guangxi, Longsheng, Hongtan, 900 m, 11.VI.1963, coll. Wang Chunguang), we confirmed that *A. trigonoprocessa* is different from *A. kishidai* in the male and female genitalia.

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