Description of a new species of *Annamanum* Pic, 1925 from Southern Yunnan, China (Coleoptera, Cerambycidae, Lamiinae, Lamiini)

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Abstract. *Annamanum mimicum* sp. nov. is described from Southeast Yunnan, China. Illustrations of habitus, endophallic structure and major diagnostic features are provided.

INTRODUCTION

The genus *Annamanum* was established by Pic (1925) for *A. vitalisi* Pic, 1925 (= *Uraecha thoracica* Gahan, 1894) and contains 31 species distributed mainly from the Himalayas to Southeast Asia with 14 species are reported from China (Lin & Ge, 2017, Tavakilian & Chevillotte, 2023). This genus can be distinguished among the Asian Lamiini Latreille, 1825 mainly by the parallel-sided frons, the labrum apical straight or slightly concave, the slender antennal scape with a complete cicatrix, the antennomere III without a tuft of setae, the antennomeres 3-7 not swollen distally, the prosternal intercoxal process depressed between procoxae, not angularly widened between them, the mesosternal intercoxal process tuberculate, the mesotibia with an external oblique groove (modified from Breuning, 1943).

During the investigations on the Chinese Lamiini longhorn beetles undertaken by the authors, the 15th species of *Annamanum* Pic, 1925 was recorded in the material from Southeast Yunnan, and is described herein accordingly. A mimic complex for some species of *Annamanum* and *Pseudoechthistatus* Pic, 1917 is reported for the first time.

MATERIAL AND METHODS

Material is deposited in the following institutional or private collections:

CAWW Collection Andreas Weigel, Wernburg, Germany;
CBWX Collection Wen-Xuan Bi, Shanghai, China;
CCCC Collection Chang-Chin Chen, Tianjin, China;
IZAS Institute of Zoology, Chinese Academy of Sciences, Beijing, China;
MNHN Muséum national d'Histoire naturelle, Paris, France;
MYNU Invertebrate Collection of Mianyang Normal University, Mianyang, Sichuan, China.

Data from all specimen labels are given verbatim, authors comments are given in square brackets.The terminology and abbreviations of the endophallus mainly follow Yamasako & Ohbayashi (2011): APH - apical phallomere; BPH - basal phallomere; MPH - median phallomere.

TAXONOMY

Annamanum humerale (Pic, 1934)

(Figs. 1, 2, 5, 10)

Urecha humeralis Pic, 1934: 35 (type locality: Chapa, Tonkin, Vietnam).
Annamanum humerale Breuning, 1943: 169; Weigel, Meng & Lin, 2013: 48.

Type material examined. Holotype (♂): Tonkin, Chapa, 23.IV.1918, Jeanvoine (MNHN). Examined from three images provided by Xavier Gouverneur.

Additional material examined. China (Yunnan): 6 ♂♂, 4 ♀♀, China, Yunnan, Jinping, Fenshuiling, 2.211 m, 2016.V.2-5, leg. Xiao-Dong Yang (CCCC); 1 ♂, China, Yunnan, Nanjian, Sheyaoqing, 2.300 m, 2017.VII.11, leg. Yi-Ting Chung (CCCC); 1 ♀, ditto except 2017.VII.10, leg. Yu-Tang Wang (CCCC); 1 ♀, Yunnan, Puer, Jingdong, Ailaoshan, elev. 2707.01 m, 24.539152° N, 101.030823° E, 2018.VII.19, leg. L.Z Meng by Flight intercept trap-01 (IZAS, ALSh2600-FIT1); 1 ♂, 1 ♀, ditto except "24°32'26,2"N, 101°1'49"E, 11.V.2019, 2680 m, leg. F. Luo & LZ. Meng FIT4 [flight interception trap]" (CAWW); 1 ♂, Bameng (Weigel et al. 2013); 1 ♂, N-Vietnam, Láo Cai Prov., Hoang Lien NP [National Park], Tram Ton, N22°21'20", E103°46'51", 1800-2050 m, 15.V.2015, leg. A. Weigel KL [umbrella].

Complementary description. Male (Fig. 1). Body length 15.1-23.1 mm, humeral width 4.5-7.5 mm.
Male endophallus (Fig. 5) similar to that of *A. mimicum* sp. nov. (described below) except for asymmetrical apical portion, APH and apical two-thirds of MPH curved laterally in dorsal view, and internal U-shaped sclerite of APH (Fig. 5a) comparatively shorter and thickened at base.
Female (Fig. 2). Body length 17.8-21.8 mm, humeral width 5.0-6.5 mm.

Distribution. China (Yunnan), Vietnam.

Annamanum mimicum sp. nov.

(Figs. 3, 4, 6, 7, 11)

Type material. Holotype (♂): "Yunnan, Honghe / Hekou, Dajianshan / 2018.V.30, 2.136.7 m", "Dajianshan-2000 m / Flight intercept / trap-03 DJS35", "22.908447° N, / 103.69731° E / Leg. L. Z. Meng" (IZAS). Paratypes (15 ♂♂, 6 ♀♀): 1 ♂, same data as holotype (IZAS); 1 ♂, ditto (MYNU); 2 ♂♂, same locality as holotype, "2018.VI.11, 2.130.1 m", "trap-04 DJS46", "22.908552° N, / 103.69727° E" (IZAS); 1 ♀, ditto except "2,100.87 m", "22.90824° N, / 103.6986° E", "trap-02 DJS26" (IZAS); 2 ♂♂, "China, Yunnan, Honghe, Dajianshan, 2.060 m, 22°54'46.5"N, 103°41'52"E, 30.V.2018, leg. LZ. Meng [DJS25]" (CAWW); 1 ♂, ditto except "08.VI.2018(DJS26)" (CAWW); 1 ♂, ditto except "11.VI.2018(DJS16)" (CAWW); 1 ♂, ditto except "103°41'51.5"E, EKL4 [flight interception trap], 17.VI.2018" (CAWW); 1 ♀, "China, Yunnan, Honghe, Dajianshan, 2.111 m, 1F1, 22°54'2.1"N, 103°41'48.2"E, 08.V.2019, leg. LZ. Meng" (CAWW); 1 ♀, "China, Yunnan, Honghe, Gulinqin, 520 m, 22°43'31"N, 103°59'57"E, 10.VI.2018, leg. A. Weigel UWP [primary forest] KL [umbrella]" (CAWW); 2 ♀♀, "China, Yunnan, Pingbian / Daweishan / 2.090 m, 2011.V.21 / leg. Xiao-Dong Yang" (CCCC); 1 ♂, ditto except "2011.V.30" (CCCC); 3 ♂♂, ditto except "2.129 m, 2016.IV.20-22" (CCCC); 1 ♂, 1 ♀, Yunnan, Hekou, Dajianshan, 2111 m, 2018.VI.11, 22.9078° N, 103.6967° E, leg. Ling-Zeng Meng (IZAS); 1 ♂, Yunnan, Hekou, Daweishan, 2020 m, 2024.VI.2, leg. Wen-Xuan Bi (CBWX).

Description. Male (Fig. 3). Body length 15.5-20.5 mm, humeral width 4.3-5.9 mm. Body and appendages blackish. Head with fronscovered with yellowish pubescence; vertex with tawny pubescence forming two vague longitudinal vittae along with asmall smooth midline; antennae with scape dorsally sparsely clothed with fine pale pubescence; remaining antennomeres covered with fine dark brown pubescence. Pronotum generally covered with sparse fine yellowish pubescence which becomes slightly denser along midline on basal half; pronotal disk with dense tawny pubescence forming apaired strip at each side about one-third of pronotal length beyond midlength, and with nearly same type of pubescence forming few poorly defined spots at anterolateral angles. Scutellum densely covered with tawny pubescence. Elytron predominantly covered with fine dark brown pubescence; elytral disk decorated with an arrow oblique submedian band of yellowish pubescence, in a few specimens additionally followed by a similarly colored curve band in similar length or much shorter near apical two-fifths; tawny pubescence forming several small subcircular spots scattered mainly along suture and lateral margin and forming narrow longitudinal preapical strip of about one-third to fourth elytral length.

Figs. 1-4. Habitus of *Annamanum* species. 1-2, *Annamanum humerale* (Pic, 1934), specimens from Yunnan, China; 3-4, *A. mimicum* sp. nov. from Yunnan, China. 1, 3, male; 2, 4, female; 3-4, paratypes.

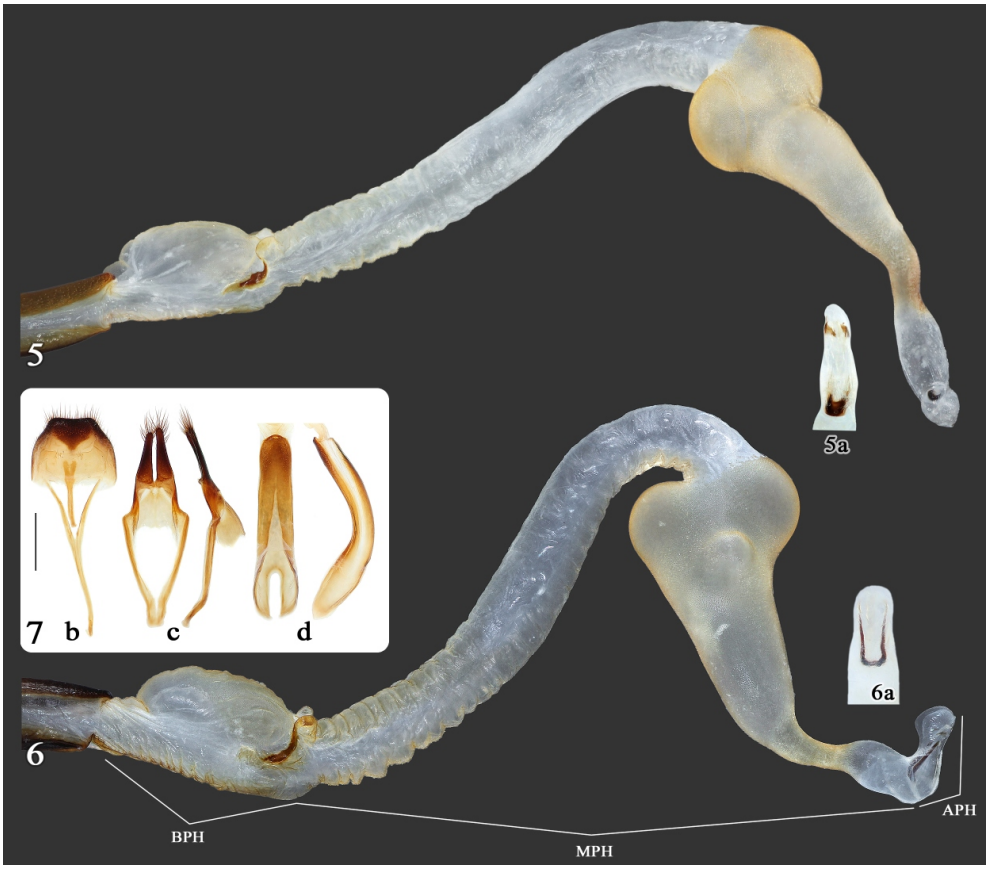
Ventral surface covered with mottled tawny pubescence, mainly on lateral sides. Femora and tibiae with sparse pale pubescence intermixed with numerous glabrous spots; spots on tibiae comparatively much smaller.

Body elongate fusiform. Frons slightly longer than wide, sparsely punctate, with a narrow median longitudinal groove extending from anterior margin to vertex; compound eyes slightly emarginate at anterior margin; lower eye lobe 1.7 times as long as wide, 1.5 times as long as gena. Antennae 2.3-2.6 times as long as body; antennomere III 1.7-1.9 times as long as scape,

antennomeres III-VI successively elongated, antennomere VII subequal to V, antennomeres VIII-XI distinctly shortened, subequal to combined length of VI-VII; scape and pedicel provided with moderately dense long suberect dark setae.

Pronotum subcylindrical, subequal in length and basal width; lateral margins broadly rounded, with or without a small lateral spine; pronotal disk slightly convex, sparsely and finely granulated mainly on basal half, granules variably large, generally larger on basal part. Scutellum subtriangular.

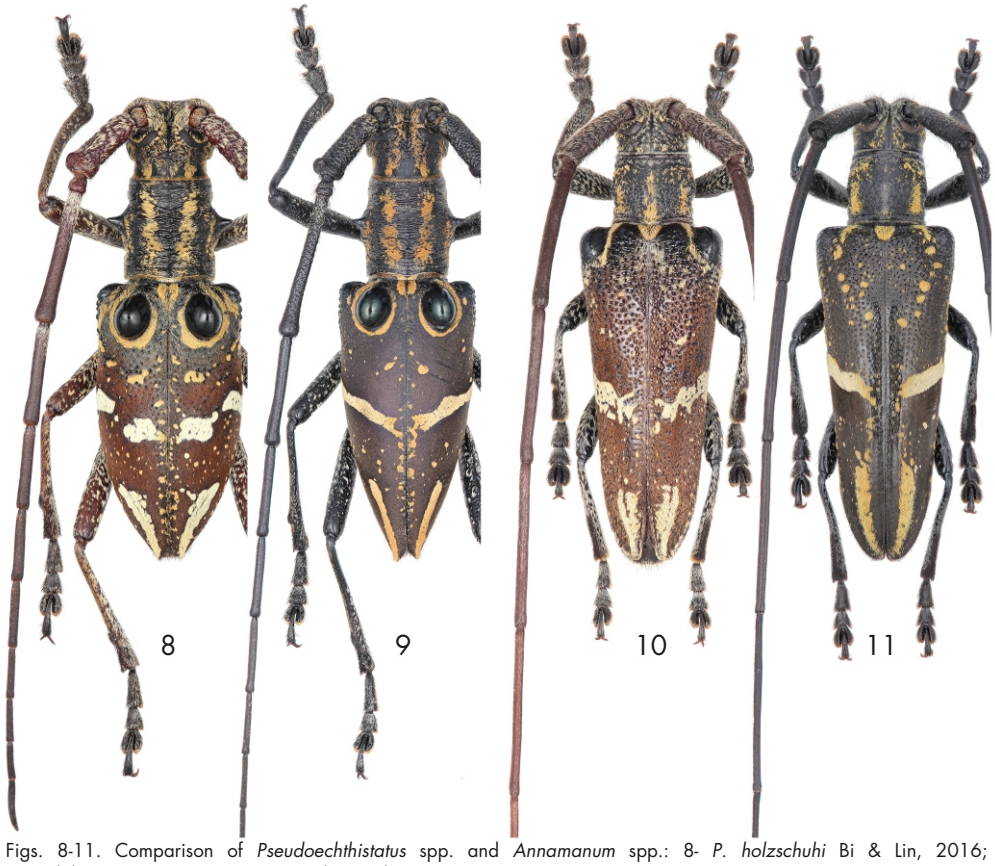
Elytra elongate, about 4.7-5.0 times as long as pronotum, 2.5-2.9 times as long as combined humeral width; gradually converging from moderately laterally prominent humeri towards separately rounded apices; moderately granulate at base; elytral disk moderately punctate on basal half, punctures becoming shallower posteriorly. Humeri moderately smooth and shiny. Mesoventral intercoxal process provided with a small tubercle. Legs moderately short and thick; metatibiae with apical fifth exceeding beyond elytral apices.



Figs. 5-7. Male terminalia of *Annamanum* species. 5- *A. humerale* (Pic, 1934); 6-7- *A. mimicum* sp. nov. 5, 6, endophallus in inflated and everted condition, 7, genitalia. a, APH in dorsal view showing the U-shaped sclerite; b, Tergite VIII with sternites VIII & IX in ventral view; c, tegmen in ventral and lateral view; d, median lobein ventral and lateral view. Scale bar = 1 mm (Figs. 5-6 not to scale).

Male terminalia and genitalia. Tergite VIII, tegmen and median lobe as in Fig. 7. Endophallus in everted condition (Fig. 6) S-shaped, long and slender, subequal to triple length of median lobe; BPH, MPH and APH well defined; crescent-shaped sclerites present; BPH distinctly swollen on entire dorsal surface; MPH strongly curved ventrally near basal two-thirds, thence strongly swollen ventrally, moderately swollen dorsally and slightly swollen laterally then gradually narrowed towards apex except for a constriction near apical one-sixth; spicules mainly distributed on apical two-thirds of MPH; apical furrow with internal membrane incomplete; APH strongly curved dorsally at base, moderately swollen dorsally on apical half; provided with an internal U-shaped sclerite (Fig. 6a) at base and one pair of short rod-like sclerite, which associated with the paired ejaculatory ducts near the gonopore on ventral surface near apex.

Female (Fig. 4). Body length 19.0-21.0 mm, humeral width 6.0-6.5 mm. Similar to male in general appearance. Antennae 1.9-2.0 times as long as body length; antennomeres III-X successively shortened; both ventral and dorsal surfaceof pedicel and antennomere III, posterior surface of antennomere IV and most of antennomere V densely covered with oblique setae giving these antennomeres a stout appearance; antennomere VI-XI ringed with pale pubescence at each basal half except at the extreme base; pronotal lateral spines stronger developed; elytra 2.4-2.5 times as long as humeral width; legs comparatively shorter.



Figs. 8-11. Comparison of *Pseudoechthistatus* spp. and *Annamanum* spp.: 8- *P. holzschuhi* Bi & Lin, 2016; 9- *P. glabripennis* Bi & Lin, 2016; 10- *A. humerale* (Pic, 1934); 11- *A. mimicum* sp. nov.

Etymology. From the Latin, meaning mimic, referring to the resemblance between the new species, *Annamanum humerale* and *Pseudoechthistatus* species.

Distribution. China: Yunnan (Hekou County, Pingbian County).

Remarks. Among the congeners, this new species is morphologically most similar to *A. humerale*, which is distributed in adjacent areas (e.g. Jinping County, Yunnan). This new species can be distinguished from the latter by the much darker antennae, the less pronounced pronotal lateral spine, particularly in males, the pronotal disk without a distinct median strip of pale colored pubescence, the elytra apparently darker with different pattern, the elytral discal punctures comparatively shallower, and the humeri less glabrous and globose.

Notes on a mimic case

Bi & Lin (2016) reported a mimetic cerambycid species, *Pseudoechthistatus sinicus* Bi & Lin, 2016 with the hunting spiders (possibly of the family Lycosidae Sundevall, 1833) as its model. The paired large elytral subbasal glossy tubercles in *Pseudoechthistatus* resemble the posterior median eyes of these spiders representing a possible case of Batesian mimicry. Similar structures were observed in our study also in *Annamanum humerale* and *A. mimicum* sp. nov. Moreover, the general appearance of these two cerambycid species, especially the coloration and the patterns of elytra, strongly resemble *Pseudoechthistatus holzschuhi* Bi & Lin, 2016 and *P. glabripennis* Bi & Lin, 2016 respectively (cf. Figs. 8-11). Considering the fact that all the above-mentioned species appear sympatrically (in Hekou County, Pingbian County, Yunnan) or at least found in adjacent areas (Jinping County, Yunnan) and considering their remarkable morphological similarity, we suppose these species forming mimicry rings.

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