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Contribution to the genus *Okinawepipona* Yamane (Hymenoptera: Vespidae: Eumeninae) from Vietnam, with description of a new species

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Abstract

A new species of the genus *Okinawepipona* Yamane from Vietnam is described and figured: *Okinawepipona yty* Nguyen, sp. nov. (northern Vietnam). Biology of *O. yty* Nguyen, sp. nov. and *O. nigra* Nguyen & Xu, 2014 is recorded. A key to the four species known in the genus is provided.

Key words: Vespidae, Eumeninae, *Okinawepipona*, new species, Vietnam

Introduction

The monotypic genus *Okinawepipona* was proposed by Yamane (1987) for *Anterhynchium* (*Epidynerus*) *kogimai* Giordani Soika, 1986. Recently, Nguyen and Xu (2014) have described two species, namely *O. nigra* from northern Vietnam and southern China, and *O. curcipunctura* from southern China.

In this paper, based on specimens deposited in the Institute of Ecology and Biological Resources, Vietnam, Hanoi (IEBR) and the Vietnam National Museum of Nature (VNMN), a new species of the genus *Okinawepipona* is described. Biology of *O. nigra* and the new described species is recorded. A key to all known species of the genus is also presented.

Material and methods

The adult morphological and color characters were observed on pinned and dried specimens under a stereoscopic microscope. Measurements of body parts were made with an ocular micrometer attached to the stereoscopic microscope. “Body length” indicates the length of head, mesosoma and first two metasomal segments combined. Terminology follows Yamane (1990). Photographic images were made with Leica EZ4HD 3.0 MegaPixel Digital Stereo Microscope, using LAS exclusive microscopy software (LAS EZ 2.0.0). The plates were edited with Photoshop CS6.

Okinawepipona yty Nguyen, sp. nov.

(Figs 1–8)

Material examined. Holotype, ♀, pinned (deposited in IEBR), VIETNAM, Y Ty, Bat Xat, Lao Cai (22°37'13.8"N,

103°37'24.7"E), alt. 1850 m, 14.viii.2017, L.T.P. Nguyen, C.Q. Nguyen & Q.H. Bui. Paratypes: VIETNAM: 6 ♀, same data as holotype (3 deposited in IEBR, 3 deposited in VNMN (VNMN.0104–0106)).

Diagnosis. This species can be distinguished from other species of genus *Okinawepipona* by the following combination of characters: propodeum with posterior surface dull, rugose, with oblique striae along the median carina; T1 in lateral view strongly convex anteriorly and clearly concave dorsally; metasoma black except a narrow orange band at the apical margins of metasomal tergum I and II (incised in the middle); and clypeus with three yellow spots, two at lateral basal margin and the other at the lower middle, near the apical margin.

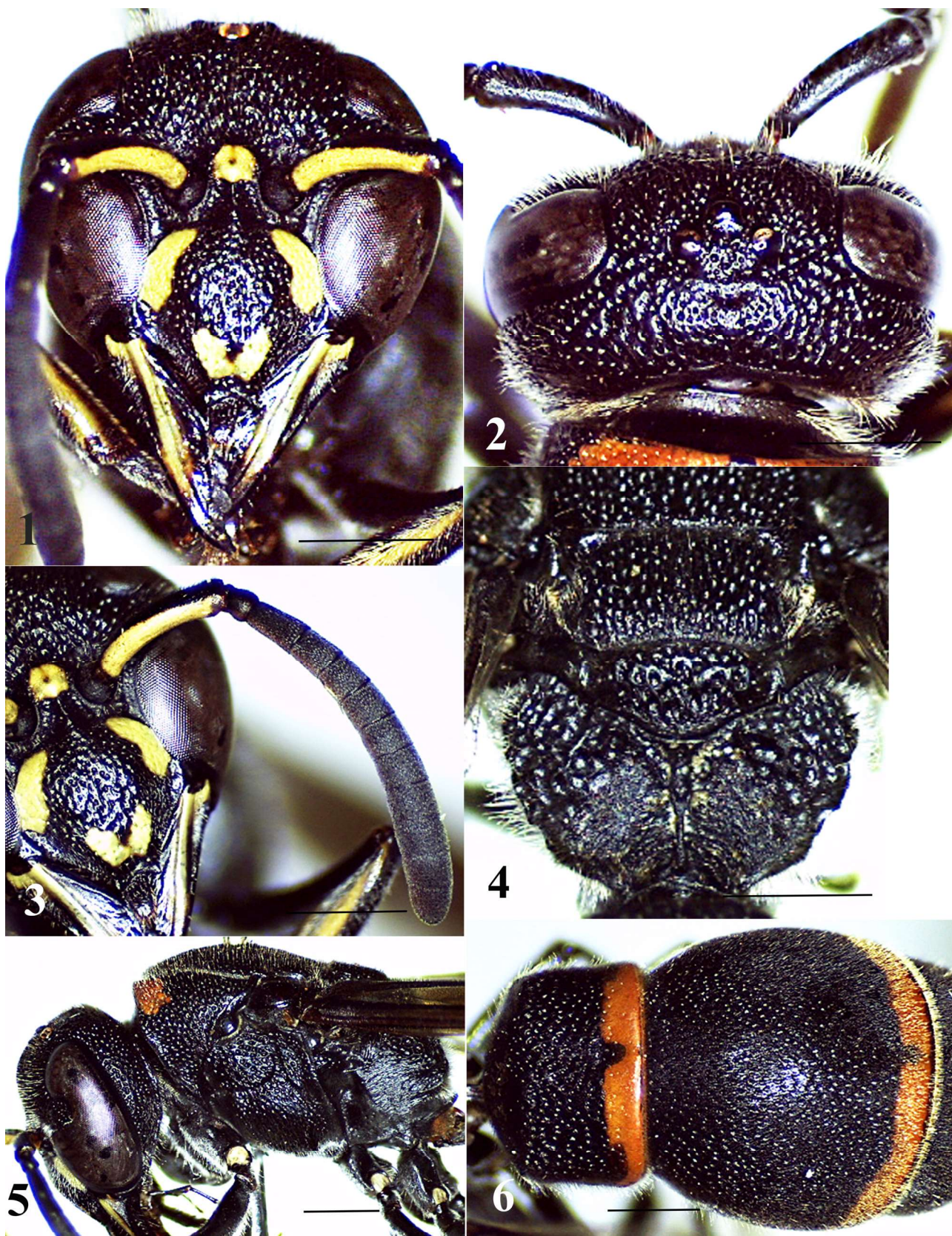
Description. *Female.* Body length 11–12 mm (holotype: 11.8 mm); fore wing length 11–12 mm (holotype: 11.7 mm). Head in frontal view subcircular, wider than high, about 1.1× as wide as high (Fig.1). Vertex with cephalic foveae small, bearing dense pubescence, situated very close to each other, almost touching to each other; depression for cephalic foveae conspicuous (Fig. 2). Distance from posterior ocelli to apical margin of vertex more than 1.7× distance from posterior ocelli to inner eye margin (Fig. 2). Gena much narrower than eye, in lateral view about 0.7× as wide as eye. Occipital carina complete, present along entire length of gena, but dorsally somewhat weak. Inner eye margins strongly convergent ventrally; in frontal view about 1.3× further apart from each other at vertex than at clypeus. Disc of clypeus in lateral view weakly convex at basal half, then straight to near apical margin; in frontal view about as wide as high (Fig. 1), with basal margin slightly convex medially and distinctly separated from antennal sockets; apical margin deeply emarginate medially, forming sharp tooth on each lateral side (Fig. 1), with two faint carina running from the tooth at apical point to the base direction; width of emargination slightly less than 1/3 width of clypeus between inner eye margins. Mandible with prominent teeth, second and third teeth with inner side produced with round margin, fourth tooth pointed apically. Antennal scape about 3.7× as long as its maximum width; flagellomere I about 1.5× as long as wide, flagellomere II slightly longer than wide, III–IV as wide as long, V–IX wider than long, terminal flagellomere bullet-shaped, as long as its basal width (Fig. 3).

Mesosoma longer than wide in dorsal view. Pronotal carina slightly raised, produced as humeral angles, reaching ventral corner of pronotum. Mesoscutum weakly convex, slightly longer than wide between tegulae; anterior margin broadly rounded. Disc of scutellum almost flat, in profile slightly higher than level of apical margin of mesoscutum (Fig. 5). Metanotum convex, sloping down to apical margin. Propodeum excavated medially, posterior surface dull, rugose, basal triangular area with basal fovea, at lower end of which median carina runs to apical margin, basal fovea greater than 1/3 of length of median carina, median carina developed for entire length of propodeum (Fig. 4); upper part of propodeum slightly produced; dorsal surface of propodeum strongly rugose; dorsal and posterior surfaces bordered by a blunt edge. Hind coxa with distinct carina, which is elevated to form triangular process.

Metasomal tergum I narrower than tergum II, truncate at base (Fig. 6); anterior vertical surface of tergum I strongly convex, with sparse shallow punctures, clearly separated from posterior horizontal surface, but not by a carina; posterior horizontal surface of tergum I in lateral view clearly concave dorsally (Fig. 7); tergum I laterally divided by sharp carina into upper and lower parts. Tergum I in dorsal view slightly greater than twice as wide as long; tergum II in dorsal view nearly as wide as long (Fig. 6); sternum II in lateral view gradually and slightly convex to apical margin (Fig. 7).

Body covered with long silvery setae except metasoma covered with short silvery setae. Clypeus with dense, large, flat-bottomed punctures, each bearing silver bristle, punctures at center larger than at sides, space between punctures larger than puncture diameter. Mandible with several shallow small punctures. Frons densely covered with coarse punctures, interspaces between punctures slightly raised to form reticulation. Vertex and gena with coarse punctures. Pronotum with punctures slightly coarser than those on frons, spaces between punctures narrow, strongly raised to form reticulation. Mesoscutum densely and coarsely covered with flat-bottomed punctures, punctures near apical margin with interspaces showing tendency to run into irregular longitudinal striae. Punctures on scutellum similar to those near apical margin of mesoscutum. Punctures on metanotum denser and smaller than those on scutellum. Mesepisternum with deep and large punctures posterodorsally, shallow and small punctures anteroventrally; border between posterodorsal and anteroventral parts indistinct. Metapleuron almost smooth in dorsal area, with sparse shallow punctures in ventral area. Propodeum with punctures on dorsal surface very coarse, spaces between punctures strongly raised to form reticulation, lateral faces with weak striae, posterior surface dull, rugose and with some weak and short oblique striae along median carina. Metasomal terga I–II densely covered with punctures, punctures on tergum I coarser and denser than those on tergum II, punctures on terga III–V much

smaller and weaker than those on terga I–II; tergum VI with minute punctures; punctures on sternum II stronger and larger than those on sternum III–V, sternum VI with minute punctures.



FIGURES 1–6. *Okinawepipona yty* sp. nov., holotype, female. 1. Head in frontal view. 2. Vertex in dorsal view. 3. Left antenna. 4. Metanotum and propodeum in dorsal view. 5. Thorax in lateral view. 6. Tergum I & II in dorsal view. Scale bar: 1mm.



FIGURES 7–9. 7. Tergum I & II in lateral view in *Okinawepipona yty* sp. nov., holotype, female. 8. *O. yty*, female inside the nest. 9. Completed nest of *O. nigra* Nguyen & Xu (2014).

Color. Black; following parts yellow: large spots on upper lateral corner and a large spot on lower middle of clypeus; narrow band along inner eye margin extending from bottom of frons nearly to ocular sinus, large spot between antennal sockets, mandible except margins, antennal scape beneath; following parts orange: thick band along pronotal carina in dorsal part of pronotum, narrow band at apical margin of terga I-II (incised in the middle, and narrowed toward lateral side of tergum I), a small spot at the apical corners of sternum II. Legs black except stripes on outer surfaces of fore femur yellow. Propodeal valvulae dark brown. Wings dark brown, slightly infusate, veins dark brown.

Male. Unknown.

Distribution. Vietnam (Lao Cai).

Etymology. The specific name refers to the type locality, Y Ty, Lao Cai province of Vietnam; it is to be treated as a noun in apposition.

Biology. The species made its nest inside a hole of a woody stick (Fig. 8), which was used to make a house for drying medicine plants in the forest. The same character was observed in *Okinawepipona nigra* Nguyen & Xu at Bat Dai Son natural reserve, Ha Giang province of Vietnam. This species made its nest inside a hole of a woody door. After completing the nest, *O. nigra* closed the hole with white material (Fig. 9).

Key to all known species of the genus *Okinawepipona*

The characters used are applicable to both sexes unless the sex is specified.

1. Body covered with very coarse punctures; mesoscutum, scutellum and metanotum strongly convex dorsally; propodeum with dorsal part strongly rugose and convex, dorsal and posterior surfaces separated by sharp edge; metasomal tergum I in dorsal view about twice as wide as long *O. curcipunctura* Nguyen & Xu (2014).
- Body covered with less coarse punctures; mesoscutum, scutellum and metanotum slightly convex; dorsal surface of propodeum not convex, dorsal and posterior surfaces separated by blunt edge; tergum I in dorsal view slightly less than twice as wide as long. 2
2. Propodeum rugose; tergum I in lateral view strongly convex anteriorly *O. yty*, **sp. nov.**
- Propodeum smooth or with striae; tergum I in lateral view slightly convex anteriorly 3
3. Clypeus in lateral view weakly convex and then straight dorsally, apical margin shallowly emarginated medially, apical teeth blunt; posterior surface of propodeum shiny, almost smooth in lateral area and with weak and short oblique striae along median carina; scutellum and metanotum black; metasomal terga IV-VI entirely black *O. nigra* Nguyen & Xu (2014).
- Clypeus in lateral view moderately convex, apical margin deeply emarginated medially, apical teeth sharp; posterior surface of propodeum with striae; scutellum and metanotum largely yellow to orange-yellow; metasomal terga IV-VI black, each with yellow to orange-yellow apical band *O. kogimai* (Giordani Soika, 1986)

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