

**NEW DISTRIBUTION AND HOST RECORD OF *Stenarella insidiator*
(Smith, 1859) (Hymenoptera: Ichneumonidae: Cryptinae) FROM VIETNAM**

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ABSTRACT

The ichneumonid parasitoid *Stenarella insidiator* (Smith, 1859) is recorded for the first time from Vietnam based on the specimens collected from Tam Dao National Park in Vinh Phuc province, Na Hang district in Tuyen Quang province, and Bidoup-Nui Ba National Park in Lam Dong province. In addition, the wasp *Orancistrocerus aterrimus* (de Saussure, 1852) (Hymenoptera: Vespidae) is reported as a new host of this parasitoid. The parasitoid is described based on Vietnamese material with information of its overwintering in the wasp nest.

Keywords: Parasitoid, new record, new host, overwinter.

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INTRODUCTION

Ichneumonids are known as parasitoids of a wide variety of holometabolous insects as well as spiders and they are considered one of the largest families of the animal kingdoms (Gauld, 1991; Pádua et al., 2023). In Vietnam, more than 400 ichneumonid species have been known and the host of some species have been documented (Long & Pham, 2007; Pham & Dang, 2008; Pham & Long, 2016; Pham, 2021; Pham et al., 2023).

Stenarella is a small ichneumonid genus within the subfamily Cryptinae, with six currently known species. Representatives of some insect families such as Cerambycidae, Curculionidae (order Coleoptera), Andrenidae, Crabronidae, Siricidae, Sphecidae, Vespidae (order Hymenoptera), Noctuidae and Notodontidae (order Lepidoptera) have been recorded as hosts of *Stenarella* species (Yu et al., 2016).

Stenarella insidiator (Smith, 1859) was first described based on specimens from Celebes (now Sulawesi, Indonesia) (Townes et al., 1961) and subsequently recorded from Cambodia, China (including Taiwan), and the Philippines (Yu et al., 2016). This species was known as a parasitoid of *Sceliphron madraspatanum* (Fabricius, 1781) (Hymenoptera: Sphecidae) (Momoi, 1968). Based on three female specimens collected from Tuyen Quang, Vinh Phuc, and Lam Dong provinces of Vietnam, of which one female was observed to overwinter from the nest of vespid wasp *Orancistrocerus aterrimus* (de Saussure, 1852), we record *S. insidiator* for the first time from Vietnam and report a new host of this species. The parasitoid herein is described along with the information of its host.

MATERIALS AND METHODS

The specimens were collected by Malaise trap and trap nest. Voucher specimens currently are deposited in the entomological collection of the Institute of Ecology and Biological Resources, Ha Noi, Vietnam (IEBR). Another collection referred to in this

paper is the University Museum of Natural History, Oxford, United Kingdom (OUMNH).

Photographs were taken using a Nikon SMZ800N M80 stereomicroscope and a Canon 700D camera. They were stacked with Combine ZP, Helicon Focus and subsequently edited by Photoshop CS2.

Morphological terminology mainly follows Broad et al. (2018).

RESULTS

New country record

Stenarella insidiator (Smith, 1859) (Fig. 1)

Mesosternus insidiator Smith, 1859. Jour. of Proc. Linn. Soc. London, Zool. 5: 60. Holotype: ♀, Indonesia (OUMNH).

Description of Vietnamese specimens: Body length: 11.6–19.7 mm, fore wing length: 8.6–12.8 mm, ovipositor sheath: 17.2–31 mm.

Head. Face 0.5× as high as wide, rugose, with lateral longitudinal impressions; clypeus 0.33× as high as wide, with dense punctures, apical margin thickened, truncate (Fig. 1C); malar space 0.4× basal width of mandible (Fig. 1D), mandible elongate, upper tooth stouter and distinctly longer than lower tooth (Fig. 1C); minimum postocellar line and minimum ocular-ocellar line 1.2–1.3× and 1.8–1.9× maximum diameter of lateral ocellus, respectively; antenna with 31–37 flagellomeres; occipital carina complete.

Mesosoma. Pronotum with epomia present, lower part with distinct striations, upper margin slightly swollen and punctate (Fig. 1G); mesoscutum rugose punctate, notaulus extending beyond median part of mesoscutum; scutellum strongly convex, with lateral carina basally; mesopleuron rugose punctate, epicnemial carina present on ventral 0.7, sternaulus moderately deep at anterior 0.6, posteriorly weak (Fig. 1G); mesosternum with posterior transverse carina shortly present medially and laterally; metapleuron rugose punctate, with long setose; propodeum with basal transverse carina present, spiracular area punctate, area below basal transverse carina rugose-punctate.

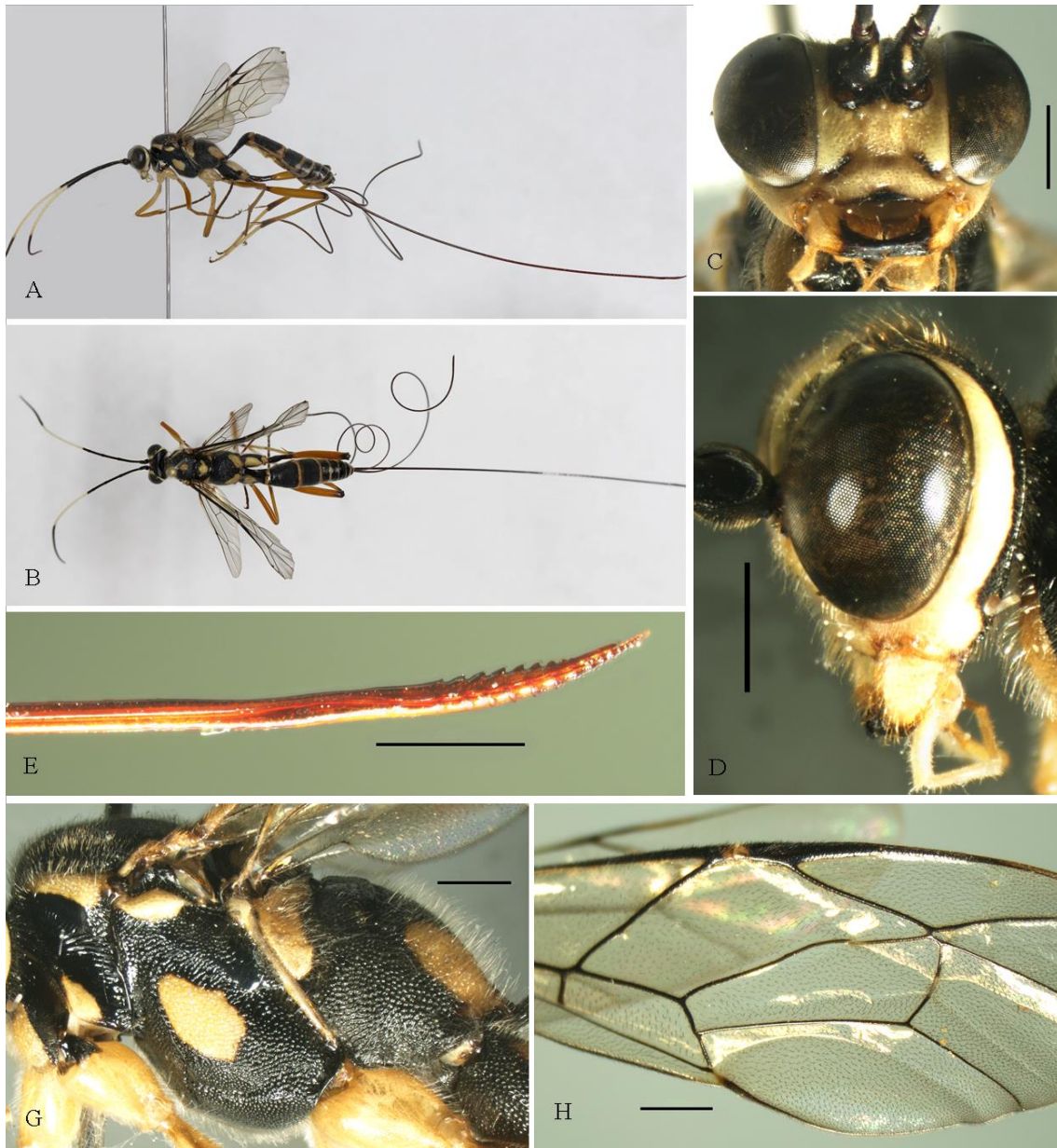


Figure 1. *Stenarella insidiator* (Smith) from Vietnam: A. body, lateral view; B. body, dorsal view; C. head, frontal view; D. head, lateral view; E. ovipositor tip; G. Mesosoma, lateral view; H. central part of fore wing. Scale bars = 1 mm

Metasoma. Tergites densely punctate; first tergite elongate, slightly widened posteriorly, 2.4–3.0× its apical width; first sternite slightly basad of level of spiracle; ovipositor sheath 4.6–4.9× hind tibia length; ovipositor tip upcurved, both lower and upper valves with teeth (Fig. 1E).

Wings. Fore wing with areolet very small, open apically; 1cu-a antefurcal M&RS about 0.5× length of 1cu-a (Fig. 1H). Hind wing with M+CU weakly curved, first abscissa of vein CU 2× cu-a, AP parallel and posteriorly convergent toward anal margin.

Legs. Hind femur 6.4–6.6× as long as wide, 0.8× as long as hind tibia; hind basitarsus 0.5× as long as tarsus.

Colour. Black with whitish yellow markings as follow: posterior 0.5 of flagellomere 4 to flagellomere 15 (or flagellomeres 5–12 in female specimen from Lam Dong province), elongate spot on scape ventrally, face (except clypeal sulcus), clypeus (except apical margin), inner orbit beyond antennal sockets, teeth (except terminal parts), gena largely, propleuron ventrally, pronotum ventrally and dorsally; a square spot on mesoscutum medially, scutellum (except basally), postscutellum, tegula, subtegular ridge, nearly round spot on mesopleuron medially, metanotum, two large spot on propodeum ventro-laterally and posterior band of each tergites. Fore and mid coxa, trochanters and trochantelli whitish yellow with black markings on coxae dorso-basally and trochanters anteriorly, fore and mid femora and tibiae reddish, fore and mid tarsi black; hind coxa, trochanter and trochantellus largely

black, except hind coxa with whitish yellow marking, hind femur and tibia reddish, except posterior part of hind femur and extreme basally and posteriorly of tibia black, hind tarsus whitish yellow. Wings hyaline with veins black. Ovipositor reddish brown, ovipositor sheath black.

Material examined. 1♀ (IEBR), Vinh Phuc province, Tam Dao National Park, 21°26.5'N 105°37'E, 400 m, 9.iv.2015, trap nest, Dang Thi Hoa collected from nest of *O. aterrimus*; 1♀ (IEBR), Lam Dong province, Bidoup-Nui Ba National Park, 12°10.915'N 108°40.822'E, 1434 m, ix–x.2017, Malaise trap, Pham Thi Nhi coll.; 1♀ (IEBR), Tuyen Quang province, Na Hang district, 30.x.2017, Malaise trap. Khuat Dang Long coll.

Distribution. Previously known from Cambodia, China (including Taiwan), Indonesia, and the Philippines (Yu et al., 2016). These are the first records of this species from Vietnam.

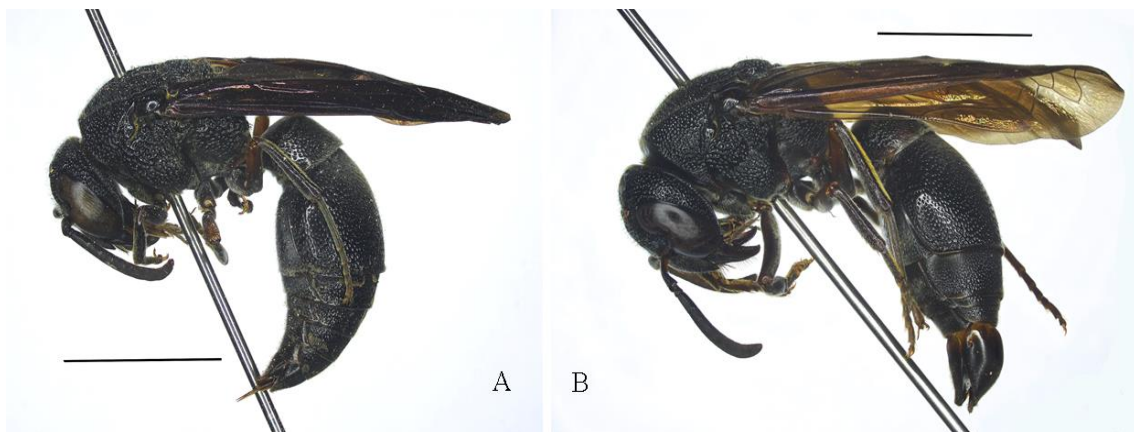


Figure 2. The host *Orancistrocerus aterrimus* (Bingham): A. male; B. Female. Scale bars: 0.5 mm

Host record. We reared one female of *S. insidiator* from a nest of *O. aterrimus* (Bingham, 1897) from Tam Dao National Park, Vinh Phuc province. Using trap nest (reed stem segment), one nest of *O. aterrimus* was collected on 17th October 2014 and opened for study on 19th October 2014. The nest was built in a reed stem segment of 445

mm long and 13 mm in inner diameter. It contained two provisioned cells. The first provisioned cell was a prepupa of another parasitoid (Chrysididae) and the second provisioned cell was a diapausing prepupa of *O. aterrimus*. The diapausing prepupa was transferred to a transparent glass tube (75 mm long, 11 mm in inner diameter) and plugged

with cotton buds. A female of *S. insidiator* was ready to eclose on 9th April 2015. Unfortunately, we did not take photos of both nest and prepupa of wasp in this nest. Due to the long ovipositor of the ichneumonid parasitoid, it is likely that the oviposition took place through the partition because at the collecting time, the nest of wasp was not sealed at the open-end of the nest.

CONCLUSION

The ichneumonid species *S. insidiator* is recorded for the first time from Vietnam. Up to date, some solitary Vespidae species have been recorded as host of *Stenarella* such as *Eumenes maxillosus*, *Eumenes pomiformis*, *Rhynchium anceps* and *Rhynchium tropicalis* (Yu et al., 2016). It is the first time the vespid wasp *O. aterrimus* is recorded as the host of *Stenarella*.

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