

## Short Communication

# New record of the mud dauber wasp *Chalybion malignum* (Kohl, 1906) (Hymenoptera: Sphecidae) from Vietnam with the first information on its nesting biology

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### Abstract

*Chalybion malignum* is a new record to the sphecid fauna of Vietnam. The first information on nesting biology, description, and distributional notes are also provided.

**Key Words:** *Chalybion malignum*, Hymenoptera, nesting biology, new record, Vietnam,

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## INTRODUCTION

Commonly called blue mud dauber wasps, *Chalybion* Dahlbom, a genus of wasps belonging to the family Sphecidae, is distributed worldwide, and most of its species occur in the Old World. Pulawski (2016) listed 47 species and 9 subspecies of the genus, of which 14 species are known to occur in the Oriental Region. Species *Chalybion* Dahlbom 1843 normally build mud nests in preexisting cavities and crevices or reuse mud nests of other species of wasps such as *Sceliphron* and *Trypoxylon* and provision their nests with paralyzed spiders (Bohart and Menke, 1976).

Five species of *Chalybion*, namely, *C. bengalense* (Dahlbom, 1845), *C. dolichothonax* (Kohl, 1918), *C. japonicum* (Gribodo, 1882), *C. gracile* Hensen, 1988 and *C. sumatranum* (Kohl, 1884) have been recorded from Vietnam so far (Tano and Kurokawa, 2015; Pham *et al.*, 2015), and no information on nesting biology of *C. malignum* has been published until today.

In the present paper, *C. malignum* is recorded to the Vietnamese sphecid fauna; information on description, distribution, and nesting biology is also provided.

## MATERIALS AND METHODS

The specimens studied in the present paper were collected using trap nests set up in Tam Dao Town (21°26.5'N 105°37'E, alt. 400 m), Tam Dao district, and Me Linh Station for Biodiversity (21°23'N 105°42'E, alt. 50 m), Me Linh district, Vinh Phuc province and Phu Luong district (21°48'N 105°44.5'E, alt. 73 m), Thai Nguyen province, and insect nets in Cuc Phuong National Park, Yen Thuy district, Hoa Binh. The adult specimens are deposited in the Institute of Ecology and Biological Resources (IEBR), Vietnam Academy of Science and Technology (VAST), Hanoi, Vietnam.

The morphological characters were observed and described from pinned and dried specimens with the aid of a stereoscopic microscope. The terminology follows Bohart and Menke (1976). The name of the species is determined based on the reference of Hensen (1988). Photographic images were taken using a stereomicroscope with a camera. The acronyms of the museums/institutions are as follows: NHMW: Naturhistorisches Museum, Zoologische Abteilung, View

DEI: Deutschen Entomologischen Institutes

## RESULTS AND DISCUSSION

*Chalybion malignum* (Kohl, 1906)

*Sceliphron malignum* Kohl, 1906: 192, ♀.

Holotype: ♀, Sri Lanka: no specific locality (NHMW).

*Chalybion malignum*: R. Bohart and Menke, 1976: 103 (new combination, in checklist of world Sphecidae).

*Sceliphron horni* Strand, 1915: 91, ♀. Holotype: Sri Lanka: "Pankulam" (DEI). Synonymized with *Sceliphron malignum* by Kohl, 1918: 74.

### Materials examined: Vinh Phuc:

2♀ + 1♂, Tam Dao, ii - vii.2013, 400m, trap-nests, H.T. Dang; 18♀ + 12♂, Tam Dao, iii - viii.2014, 400m, trap-nests, H.T. Dang; 6♀ + 3♂, Me Linh, i - vi.2013, trap-nests, H.T. Dang; 10♀ + 6♂, Me Linh, vii - xii.2014, trap-nests, H.T. Dang; **Thai Nguyen**: 22♀ + 9♂, Phu Luong, 25.v - 03.vi.2014, H.T. Dang; **Hoa Binh**: 2♀, Cuc Phuong National Park, Yen Thuy, 21.vii.2016, P.H.Pham.

### Description:

Female (Fig. 1a): Body length 17.2 - 22.3 mm, forewing length 13.5 - 15.2 mm. Body dark blue, antenna black, mid and hind tarsus black with violaceous reflection, mid and hind femur dark violaceous; fore wing and hind wing proximally hyaline, distally dark brown. Clypeus with five defined teeth; three median teeth close together, longer and broader than the others. Mandible with broad apical tooth. Pronotal collar raised nearly as high as anterior part of scutum, with distinct median notch, each side with obviously deep impression. Pronotum and scutum strongly transversely strigose, lower metapleural area with distinct transverse striations. Propodeal side sharply and coarsely striated, propodeal dorsum irregularly striated. Petiole curved, shorter than hind basitarsus. Terminal sternum of gaster flat, wide and apically truncated. Clypeus sparsely strongly punctate, mesopleuron densely coarsely punctate, propodeum punctate reticulate, gaster without punctations.

Male (Fig. 1b): Body length 13.4 - 15.2 mm, forewing length 10 - 11.2 mm. Structure similar to female in general appearance, placoids on antenna absent, sternum VIII triangular at apex



Figure 1: *Chalybion malignum* (Kohl, 1906). a-Female, habitus. b-Male, habitus. c-Trap-nests. d-Nest cell

**Distribution**

Sri Lanka, India, Burma, Malaysia, Indonesia, China, **Vietnam**: provinces of Hoa Binh, Vinh Phuc, and Thai Nguyen.

**Distribution notes**

Kohl (1906) described this species based on a female from Sri Lanka, but did not indicate the exact locality. Strand (1915) specified the exact locality while the author described the species under name *Sceliphron horni* which is now treated as a junior synonym. In 1918, Kohl described the male from the exact locality. Hensen (1988) added four localities for the species including India, Burma, Malaysia, and Indonesia. Hua (1989) recorded this species in a list of insects deposited in Zhongshan University, China. In Vietnam, with a survey period of six years from 2010 to 2016, this species has only recorded in mountainous areas with an altitude above 50 m so far.

**Information on nesting biology**

Nests of *C. malignum* have only been recorded in trap nests (Fig. 1c), and each trap nest contained only one to two cells but strong tendency to one (Fig. 1d). Female usually chose short trap nests with 45 - 120 mm in length and 5 - 18 mm in diameter. The length of the provisioned cell was highly variable, ranging from 22 to 484 mm. The plug of the cell was made of the mud, rough on the inner surface and flat on the outer surface. A very thin resin layer of unknown origin was covered the outer surface of the plug. The pupa was enclosed in a brown cocoon. The cells were provisioned with prey spiders of the genus *Gasteracantha* (Araneidae).

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