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## Mysmenidae (Arachnida, Araneae), a spider family newly recorded from Vietnam

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### Abstract

The spider family Mysmenidae is reported from Vietnam for the first time. Both sexes of three new species are described: *Calodipoena tamdaoensis* n. sp. from Tam Dao National Park, *Gaoligonga taeniata* n. sp. and *Mysmena maculosa* n. sp. from Cuc Phuong National Park. Morphological descriptions, diagnoses and comparative illustrations are provided.

**Key words:** taxonomy, Orbiculariae, Araneoidea, fogging, sieving, diagnosis, description

### Introduction

Mysmenids are very small (0.7–3 mm), entelegyne spiders that occur throughout the tropical, subtropical and southern temperate regions of the world. They mainly occur in leaf litter and other cryptic places in humid habitats (Lopardo & Coddington 2005), and even in caves. In recent years, numerous studies of the family Mysmenidae have been published by Lopardo *et al.* (2011), Lopardo & Michalik (2013), Miller *et al.* (2009) and Lin & Li (2008, 2013a, 2013b). According to Platnick (2014), 23 genera and 131 mysmenid species have been described. However, mysmenids have not previously been described from the Indochina Peninsula.

In recent years, Vietnam has become one of the hotspots of spider diversity research, with spiders of the families Amaurobiidae, Zodariidae, Sparassidae, Linyphiidae, Thomisidae, Hahniidae and Oonopidae having been intensively studied (Grismado & Ramírez 2004, Jäger 2003, Jäger & Vedel 2005, Tu & Li 2004, 2006, Wang, Xu & Li 2008, Wang & Jäger 2008, Lin, Pham & Li 2009, Tong & Li 2013, Zhang, Li & Pham 2013, Benjamin 2013). The faunal survey of spider diversity at the Tam Dao National Park and the Cuc Phuong National Park in Northern Vietnam from 2007 to 2008 revealed some mysmenid specimens, including three new species, which are described in this study and placed separately in the genera *Calodipoena* Gertsch & Davis, 1936, *Gaoligonga* Miller, Griswold & Yin, 2009 and *Mysmena* Simon, 1895. This is the first record of the family Mysmenidae from Vietnam.

### Material and methods

Specimens were examined and measured under a Leica M205 C stereomicroscope. Further details were studied under an Olympus BX43 compound microscope. All drawings were made using a drawing tube attached to an Olympus BX43 compound microscope, and then inked on ink jet plotter paper. Male palps and female genitalia were examined and illustrated after they were dissected and detached from the spiders' bodies. Vulvae were removed and treated in lactic acid before illustration. To reveal the course of the spermatid duct, male palps were also treated in lactic acid and mounted in Hoyer's Solution. All type specimens are preserved in 85% ethanol solution. Photos were taken with a Canon EOS 60D wide zoom digital camera (8.5 megapixels). The images were montaged using Helicon Focus 3.10.3 software (Khmelik *et al.* 2006).



**FIGURE 20.** Locality records of three new mysmenids from Vietnam. 1. *Calodipoena tamdaoensis* n. sp.; 2. *Gaoligonga taeniata* n. sp.; 3. *Mysmena maculosa* n. sp.

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