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Description of a new species of Penicillate Millipede from the genus *Monographis* (Diplopoda: Polyxenidae) found in Vietnam

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Abstract

A new species of penicillate millipede, from genus *Monographis* (Diplopoda: Polyxenidae), was collected from Trang Bom and Dinh Quan, within the Dong Nai province, southern Vietnam. Taxonomic characteristics of the genus *Monographis* Attems, 1907, were used to formally describe this new species. Sensilla of the 6th antennal article and claw structures of *Monographis dongnaiensis* were compared with those of *M. tamoyoensis*, *M. yunnanensis* and *M. queenslandicus*. Genomic DNA of *M. dongnaiensis* was compared with the DNA of other species within the genus *Monographis*. *Monographis dongnaiensis* is confirmed as the ninth member of the genus *Monographis* and named *Monographis dongnaiensis* after the collection site Dong Nai province in Vietnam.

Key words: Diplopoda, Polyxenidae, *Monographis*, sensilla, claw structure

Introduction

The genus *Monographis* was first described by Attems, 1907, based on a single species, *Monographis kraepelini*, from Java, Indonesia. The original taxonomic description of *Monographis* had insufficient detail for recognition and the ensuing confusion lead to a review of genus *Monographis* by Nguyen Duy-Jacquemin & Condé (1967). This revision indicated that characteristics such as the presence of a row of seta on the labrum, the size of gnathochilaria and the presence of a spine on tarsus 2 made the genus distinctively different from other genera in the family Polyxenidae. After this revision, a number of species were added to this genus including: *M. annandalei* Silvestri, 1948, *M. demangei* Nguyen Duy-Jacquemin & Condé, 1967, *M. mirus* Turk, 1947, from India, and *M. tamoyoensis* Condé & Nguyen Duy-Jacquemin, 1963, from Brazil. In addition, two subspecies, *Monographis kraepelini malayanus* Nguyen Duy-Jacquemin & Condé, 1966, and *M. kraepelini sabahmus* Condé & Nguyen Duy-Jacquemin, 1984, found in Malay-Indo regions, as well as *M. baihualingensis* and *M. yunnanensis* Ishii & Yin, 2000, from southern China and *M. queenslandicus* Huynh & Veenstra, 2013, from northern Australia have been described. Genus *Monographis* was divided into two groups according to the arrangement of sensilla on the 6th antennal article, forming crescent or triangular shapes (Huynh & Veenstra 2013). This division made it easier to identify species within this genus. Genomic DNA of this new species was compared to the sequences from other species within genus *Monographis* available from Genbank to confirm that this was indeed a new species and explore its relationship with other members of this genus. Based on the presence of aforementioned morphological characteristics and genetic information, a new species of penicillate millipede, from genus *Monographis* (Diplopoda: Polyxenidae), collected from Trang Bom and Dinh Quan, Dong Nai province, southern Vietnam, has been identified. It is the first species from genus *Monographis* recorded from Vietnam. The description of *Monographis dongnaiensis* (Polyxenidae) follows.