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First record of the African-Indian centipede genus *Digitipes* Attems, 1930 (Scolopendromorpha: Otostigminae) from Myanmar, and the systematic position of a new species based on molecular phylogenetics

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Abstract

The first Southeast Asian record of the scolopendrid centipede *Digitipes* Attems, 1930, has been collected and analyzed based on a new species from Myanmar, males possessing a distomedial process on the ultimate leg femur that is diagnostic of the genus. *Digitipes kalewaensis* n. sp., described herein, is distinguished from other members of *Digitipes* by its 2.5 to 2.7 dorsally glabrous antennal articles, an unusually long basal suture on the tooth-plates, absence of a lateral spine on the coxopleural process, and a lack of median and dorso-median spines on the ultimate leg prefemur. Maximum likelihood and Bayesian analyses of two molecular markers (mitochondrial COI and 16S rRNA) supported the proposal of a new species from Myanmar. The phylogenetic tree identifies *Digitipes barnabasi* from the Western Ghats, India, in a polytomy with members of other genera of Otostigminae (*Otostigmus*, *Ethmostigmus* and *Rhysida*) and a robust Indian-Burmese *Digitipes* clade in which *D. kalewaensis* n. sp. is resolved as sister group to a clade composed of most Indian species. Available molecular dates for the diversification of Indian *Digitipes* are consistent with introduction of the genus into SE Asia when the Indian subcontinent made contact with Myanmar in the early Palaeogene.

Key words: Scolopendridae, *Digitipes*, phylogenetics, biogeography

Introduction

The centipede genus *Digitipes* Attems, 1930, is considered as a relatively narrow-range endemic in the subfamily Otostigminae Kraepelin, 1903, being distributed only in the African and Indian regions (Jangi and Dass 1984; Joshi and Edgecombe 2013). The validity of this genus had been debated because it is supported by only a few unique morphological characters, the most distinctive of which are confined to one sex only (the male), and its geographic distribution overlaps with that of the widespread *Otostigmus* Porat, 1876 (Attems 1930a, b; Lewis 2004). Evidence of variability in morphological characters within species of tropical scolopendromorph centipedes has been documented for several decades (Lewis 1978, 2000) and, as discussed below, some of the purportedly diagnostic characters of *Digitipes* are among those known to be subject to variability within species. However, recent molecular phylogenetic analyses of the Indian members of *Digitipes* have added novel support to its recognition as a distinct genus because its species united as a monophyletic group and were separated from other genera by considerable genetic divergence (Joshi and Karanth 2012).

The distribution of *Digitipes* is limited to former regions of Gondwana. The timing of diversification of *Digitipes* and other Indian Scolopendromorpha has been estimated using molecular dating (Joshi and Karanth 2011, 2013). The deepest divergences within Indian *Digitipes* correspond to drift of peninsular India during the

dates the connection between the West Burma terrane and East Gondwana, from which it is inferred to have drifted from the Australian margin by the Late Triassic and was already incorporated into SE Asia in the Cretaceous (Metcalf 1998). Rather than inferring that current molecular dates grossly underestimate an earlier Mesozoic history for *Digitipes*, an alternative timing for introduction of *Digitipes* into Myanmar relates to the contact of the northeastern corner of peninsular India with SE Asia in the late Palaeocene-early Eocene (Ali and Aitchison 2008). In any case, the conspicuous gaps between occurrences in both Africa and India-SE Asia suggest that current distributional data are likely incomplete.

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