

Unravelling the phylogeny of two closely related crab spider genera in Sri Lanka (Araneae: Thomisidae)

Ilesha Sandunika ILEPERUMA ARACHCHI, N. ATHUKORALA and Suresh P. BENJAMIN

National Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka;
email: sandunikailleperuma@gmail.com

Members of the genera *Tmarus* (Simon, 1875) and *Peritraeus* (Simon, 1895) are morphologically very similar crab spiders, which makes them difficult to identify without thorough observation. *Peritraeus* was thought to be endemic to Sri Lanka with *P. hystrix* the only species in the genus, recorded about 127 years ago. This species was rediscovered from Kandy (its type locality) during this study. *Tmarus* is a speciose genus that currently contains 222 species distributed worldwide, with 38 species recorded from the Asian region. The objective of this study was to assess the monophyly of *Peritraeus* and describe its relationship to *Tmarus* using a multi-locus molecular phylogeny of these two genera, close relatives and representatives of other branches of the thomisid tree of life. Field work was conducted in 80 localities covering 20 districts in Sri Lanka. Additional material was loaned from museums. Partial fragments of nuclear Histone 3 (H3) and 28S rDNA (28S) and mitochondrial genes, cytochrome c oxidase subunit 1 (COI) and a section spanning 16S and NADH dehydrogenase subunit 1 (16S-NAD1) were amplified. Twenty-six in-group and 11 out-group taxa were included in the final analysis. A maximum-likelihood (ML) tree was inferred with MEGA and parsimony analysis performed in TNT. Two species of *Peritraeus* and three species of *Tmarus* were recorded. *Peritraeus* was distributed in both dry and wet zones of the country, whereas *Tmarus* was restricted to montane and sub-montane forests of the central highlands. Our molecular analysis of the combined data set (1833 bp) recovered a strongly supported monophyletic *Tmarus*. Further, both ML and parsimony analysis suggest that *Peritraeus* is a clade within *Tmarus*. Thus, it is concluded that *Peritraeus* spp. should be transferred to *Tmarus*. Further, four species of *Tmarus* new to science discovered during this study will be formally described in a future publication.

Keywords: molecular phylogeny, monophyly, parsimony analysis, *Peritraeus*, *Tmarus*.