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PHYLOGENETIC ANALYSIS AND TAXONOMIC REVISION OF PHYSODACTYLINAE (COLEOPTERA, ELATERIDAE)

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ABSTRACT

A phylogeny based on male morphological characters and taxonomic revision of the Physodactylinae genera are presented. The phylogenetic analysis based on 66 male characters resulted in the polyphyly of Physodactylinae which comprises four independent lineages. Oligostethius and Idiotropia from Africa were found to be sister groups. Teslasena from Brazil was corroborated as belonging to Cardiophorinae clade. The South American genera Physodactylus and Dactylophysus were found to be sister groups and phylogenetically related to Heterocrepidius species. The Oriental Toxognathus resulted as sister group of that clade plus (Dicrepidius ramicornis (Lissomus sp, Physorhynchus erythrocephalus)). Taxonomic revisions include diagnoses and redescriptions of genera and distributional records and illustrations of species. Key to species of Teslasena, Toxognathus, Dactylophysus and Physodactylus are also provided. Teslasena lucasi is synonymized with T. femoralis. A new species of Dactylophysus is described, D. hirtus sp. nov., and lectotypes are designated to non-conspecific D. mendax sensu Fleutiaux and Heterocrepidius mendax Candèze. Physodactylus niger is removed from synonymy under P. oberthuri; P. carreti is synonymized with P. niger; P. obesus and P. testaceus are synonymized with P. sulcatus. Nine new species are described in Physodactylus: P. asper sp. nov., P. brunneus sp. nov., P. chassaini sp. nov., P. flavifrons sp. nov., P. girardi sp. nov., P. gounellei sp. nov., P. latithorax sp. nov., P. patens sp. nov. and P. tuberculatus sp. nov.

KEY-WORDS: Morphology; Click beetles; Neotropical region; Afrotropical region; Ethiopian region; Oriental region.

INTRODUCTION

The subfamily Physodactylinae was erected by Lacordaire (1857) to include the Brazilian genus *Physodactylus* Fischer von Waldheim, 1823 in Cebrionidae, family currently regarded as subfamily of Elateridae (Lawrence & Newton, 1995; Costa *et al.* 2010). Posteriorly, several authors included elaterids with apparently burrowing adaptations in Physodac-

tylinae based on the conspicuous features shared by cebrionines and *Physodactylus*: fossorial legs, falciform mandibles and prosternal anterior lobe (chin piece) not produced.

Fairmaire (1878) erected *Toxognathus*, from Southeast Asia and related it to *Physodactylus*. Fleutiaux (1892) erected *Dactylophysus* and *Teslasena* to include described species in *Heterocrepidius* Candèze, 1859 and new species from South America, placing

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