

ASSESSING THE EVOLUTION OF SRI LANKAN SANDFLY SPECIES BELONGS TO THE GENUS *Sergentomyia* USING CYTOCHROME C OXIDASE SUBUNIT I (CO I) PARTIAL SEQUENCE.

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ABSTRACT

Sandflies are vectors of *Leishmania* parasites that cause Leishmaniasis in human. The taxonomy of sandflies and their vector potential have not been comprehensively documented. This study aimed to assess the evolution of the sandflies by using a mitochondrial DNA marker. Partial DNA sequence for cytochrome c oxidase subunit 1 of Sri Lankan sandfly species were used for the analysis. Edited sequences were used in the phylogeny tree construction using Maximum likelihood method. The consensus tree was obtained with condensation of the clades at a cut-off value of 70% of the bootstrapping value. The phylogenetic tree obtained corresponds to the traditional taxonomy where *Se.bailyi* deviates from Subgenus *Parratomyia* and form a separate group, as discussed in some taxonomic keys. The tree also supports the tritomy concept of the subgenera *Parratomyia*, *Sergentomyia*, and *Neophlebotomus*. It also reflects the species complex of *Se.babu insularis* and *Se.babu babu* within the respective subgenus; *Parratomyia*. Phylogenetic relationship among the species belong to the genus *Sergentomyia* is reassessed. Combined approach of molecular phenotypes (identified via DNA markers) together with morphological features is suggested to identify the definitive taxonomic status of species.

Key words: Sandfly, DNA marker, Taxonomy, Evolution