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A Survey on sand flies in selected sites of Dickwella (Matara District), Sri Lanka

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Sand fly (Order Diptera, Family Psychodidae, Subfamily Phlebotominae) is the known biological vector responsible for transmitting the disease Leishmaniasis caused by the haemoparasite, *Leishmania* sp. Leishmaniasis is one of the neglected tropical diseases in the world, and it has been identified as an emerging disease in Sri Lanka. Dickwella area in Matara District is highly endemic to cutaneous form of Leishmaniasis of which the true Sand fly vector species responsible for transmission is yet to be identified. Objective of the current survey was to precisely identify different sand fly species in the area for future disease or vector control measures. Survey was carried out from February to August, 2020 in ten selected sites using sticky light traps. Permanent slides were prepared using dissected head, wing, and terminal abdominal segments of sand flies. Five important morphological characters, i.e., Eye length/ Head length ratio, length of 3rd antennal segment, wing width, R2/R2+3 wing vein ratio, and haltere length were observed. Species identification was done using standard taxonomic keys. Eight sites were positive for foraging Sand flies. Altogether, 117 Sand flies were captured. Total of five different Sand fly species, namely, *Phlebotomus argentipus* and four different species of genus *Sergentomyia* (*S. zeylanica, S. punjabensis, S. modii* and *S. babu*) were discovered. In distinguishing the two genera separately, wing width showed the most significant difference between genera thus it will enable reliable geneus identification. The highest species richness as well as diversity occurred where cattle were reared because it provides ideal breeding conditions for Sand fly. *P. argentipes* showed the highest percentage (29%) occurrence. Further studies are required to identify the potential Sand fly vector species of Leishmaniasis in Dickwella area.

Keywords: *Dickwella, morphological identification, Sandfly species*

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