



hasnayana@yahoo.com

Tel: 07 8733816

108/A

Diversity of Anopheline mosquitoes (Diptera: Culicidae) in the Trincomalee District during one year

R M T B Ranathunge¹, P A D H N Gunathilaka^{1&2}, D N Kannangara¹, W Abeyewickreme¹ and M D Hapugoda^{1*}

¹*Molecular Medicine Unit, Faculty of Medicine, University of Kelaniya, Kelaniya*

²*Tropical Environmental Diseases & Health Associates, No 3, Elibank Road, Colombo 05*

The Trincomalee District is one of the main endemic areas for malaria in Eastern Sri Lanka. This study was conducted to assess the presence of anopheline mosquito species and to determine the diversity of anopheline fauna distribution across the district.

An entomological surveillance was performed in five potential malaria sensitive areas (Padavisiripura, Gomarankadawala, Thoppur, Mollipothana and Ichchallampaththu) situated within a radius of about 20 Km in the Trincomalee District during April 2013 – March 2014. Adult *Anopheles* mosquitoes were collected using three entomological field techniques, as specified by the WHO; Indoor Hand Collection (HC), Window Trap Collection (WTC) and Cattle-Baited Net Collection (CBNC). Standard larval collection was performed for collection of larvae. All collected mosquitoes were identified using standard taxonomic keys. The Shannon diversity index was used to characterize species diversity at the five study sites by its abundance and evenness of the species present. A total of 6,679 *Anopheles* mosquitoes (adults and larvae) among 13 species were found during the study period. The dominant species was *An. subpictus* (42.2%, n = 2,818). Other species were *An. peditaeniatus* (16.2%, n = 1,083), *An. nigerrimus* (15.3%, n = 1,019), *An. barbirostris* (9.0%, n=603), *An. pallidus* (3.5%, n = 235), *An. annularis* (3.4%, n = 225), *An. jamesii* (3.1%, n = 208), *An. barbumbrosus* (3.1%, n = 208), *An. vagus* (2.2%, n = 144), *An. culicifacies* (1.8%, n = 112), *An. varuna* (0.2%, n = 15), *An. aconitus* (0.1%, n = 5) and *An. pseudojamesi* (0.1%, n = 4). The Shannon diversity index for Mollipothana, Gomarankadawala, Ichchallampaththu, Thoppur and Padavisiripura were 1.996, 1.763, 0.935, 0.873 and 0.042, respectively. *An. Subpictus* showed a widespread distribution in the Trincomalee District. *An. culicifacies* was recorded only from Mollipothana, Thoppur and Ichchallampaththu areas. Shannon diversity index was high in Mollipothana and Gomarankadawala areas. It can be concluded that the species richness and diversity of *Anopheles* mosquitoes is higher in these areas. The presence of permanent breeding places such as lakes, paddy fields, irrigation canals and marshy lands and a variety of natural and artificial shelter for mosquito resting may be the underlying factor for this phenomenon. More knowledge on the ecology of malaria vectors will help to eliminate malaria in the country.

Acknowledgment: Financial assistance by the National Research Council (NRC Grant No. 12-133) and technical support by the GFATM (Round 8) are acknowledged.

Keywords: Malaria vectors, abundance, diversity index