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Morphological identification and abundance of malaria vectors in the Trincomalee District

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Malaria was formerly an endemic problem in the Trincomalee District, Eastern Province of Sri Lanka. Entomological data is important for planning vector controlling strategies in these areas. Therefore, the aim of this study was to identify various *Anopheles* species and their abundance in the Trincomalee District.

Entomological surveys were conducted on a monthly basis, using five entomological techniques namely; Indoor Hand Collection (HC), Window Trap Collection (WTC), Cattle Baited Net Collection (CBNC), Cattle Baited Hut Collection (CBHC) and Larval Surveillance (LS) from June 2010 to December 2013 in 32 study areas of the five entomological sentinel sites (Padavisiripura, Gomarankadawala, Thoppur, Mollipothana and Ichchallampaththu); within a radius of about 20 Km. Factors such as past malaria history, environmental conditions, availability of breeding sites, an established agricultural community and feasibility of field operations to collect relevant data were considered for selecting the study areas. Overall, a total of 131,777 anopheline mosquitoes comprising 17 species were identified. *An. peditaeniatus* (Leicester) complex (26.8%, n = 35,329) was the most abundant *Anopheles* species followed by *An. subpictus* (Grassi) (25.9%, n = 34,160), *An. nigerrimus* (Giles) (22.6%, n = 29,874) and *An. barbirostris* (Van der Wulp) (7.8%, n = 10,380). *An. culicifacies* (Giles), the main malaria vector in Sri Lanka represented 1.5% (n = 2,020) of the total mosquitoes collected. Of the five techniques, CBNC was denoted as productive, in which 46.6% (61,442/131,777) of the total anophelines was encountered. Other species such as *An. annularis* (n = 5,405), *An. pallidus* (n = 5,107), *An. vagus* (n = 4,385), *An. varuna* (n = 1,132), *An. tessellatus* (n = 285) and *An. aconitus* (n = 90) were also noted as other potential vectors. Larval surveys were observed as the most productive technique for *An. culicifacies* (n = 1,681). It is suggested that the larval surveillance under the current malaria elimination program be strengthened in order to facilitate prompt controlling of vectors through larval control interventions. The presence of main, secondary and other potential vectors in these areas may lead to malaria outbreaks with an increasing trend of imported cases. Therefore, continuous entomological monitoring is compulsory to maintain the achievements which have already been accomplished in malaria control.

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