The anopheles culicifacies and an. subpictus species complexes in Sri Lanka and their implications for Malaria control in the country

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Abstract

Anopheles culicifacies, the major vector of malaria in Sri Lanka, and An. subpictus, a secondary vector, exist as species complexes in the country. Among the globally reported five sibling species (A-E) of the An. culicifacies complex, only species B and E have been detected in Sri Lanka. However, all four sibling species (A-D) of the An. subpictus complex present globally are found in Sri Lanka. This article reviews the data on the characteristics of the sibling species of these two main malaria vectors in Sri Lanka and methods for differentiating them, and highlights the importance of understanding the bio-ecological variations among the sibling species in order to develop an effective vector control program in the country. It is proposed that An. culicifacies species E may have evolved from species B in Sri Lanka and then spread to South India. The development of DNA probes suitable for differentiating the sibling species of An. culicifacies and An. subpictus in field studies is identified as a particular priority for future work.

Author keywords

Anopheles culicifacies; Anopheles subpictus; DNA probes; Malaria; Sibling species; Species complex; Sri Lanka; Vector

Indexed keywords

EMTREE drug terms: chlorphenotane; cyhalothrin; deltamethrin; DNA; malathion

EMTREE medical terms: Anopheles; anopheles culicifacies; anopheles subpictus; article; disease carrier; disease transmission; DNA probe; health program; India; insecticide resistance; malaria; malaria control; nonhuman; Plasmodium falciparum; Plasmodium vivax; prevalence; species difference; Sri Lanka; sympatry; vector control