

## DIFFERENTIAL BIO-ECOLOGY OF ANOPHELINE SIBLING SPECIES : A RELEVANCE TO MALARIA CONTROL IN SRI LANKA

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Human intervention by various means has altered natural ecosystems and thus paved way for emergence of new vectors and their propagation leading to the spread of malaria world wide. Vector ecological studies have been undertaken in order to locate risk areas for malaria and to formulate appropriate strategy for vector control. The prevalence and abundance of mosquito immature stages in various breeding sites reflect the oviposition preference of females and it can be attributed at inter specific and intraspecific levels. Knowledge, especially at intraspecific level, on bio-ecology of vectors is an essential prerequisite for formulating effective environmental management interventions for the control of malaria.

Morphologically more or less similar but reproductively isolated members of a taxon are termed sibling species and the taxon are species complex. Sibling species exhibit differences with respect to feeding and resting preference, rate of development of resistance to insecticide, susceptibility to parasites and seasonal prevalence.

Among known malaria vectors in Sri Lanka, *Anopheles culicifacies*, the major vector of malaria, *An. Subpictus* and *An. Annularis*, the subsidiary vectors are reported to be existing as species complex in the Indian subcontinent. Studies on the bionomics of the two sibling species B and E of *An. Culicifacies* in Sri Lanka reveal that these two sympatric populations are diverged in certain bio- ecological aspects which are essential for implementing a successful vector control program. Laboratory infective studies showed that species E could support the extrinsic cycle of *Plasmodium vivax* and *P. falciparum*. Studies on the age structure of species Band E revealed that species E has entered the epidemiologically dangerous age. Both siblings showed differential susceptibility to Malathion. Studies on the limnological characterization of larval breeding sites of species B and E showed that species E prevailed in variety of breeding habitats, an indication of high level of adaptive variation of species E. Sibling species status of *An. Annularis* in Sri Lanka is yet to be revealed. A study on the sibling species of *An. Subpictus* from a locality in North Western province of Sri Lanka revealed that species B is predominant in coastal and species C in inland areas.