

D-36: A preliminary study of night human biting mosquitoes at two locations in the dry zone: Batticaloa district

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Mosquito borne diseases are major health problems in Sri Lanka. Such diseases take up considerable amount of money and time with respect to medical care and loss of productivity. Mosquito borne diseases including malaria, Japanese encephalitis and dengue have been reported from Batticaloa. No previous studies have been done regarding the extent of diseases, identification and abundance of mosquito species in this district. This study is an attempt to collect data on prevalence of mosquito borne disease and to study the abundance of mosquitoes in 2 locations in Batticaloa district: one in an urban area and the other in a village surrounded by agricultural lands.

Data regarding mosquito borne diseases was collected from the Medical Officer of Health, Batticaloa for each month for the years 1993/94. The 2 locations selected for collection of mosquitoes were Batticaloa town which is densely populated and Vantharumoolai which is sparsely populated and surrounded by agricultural lands. Human night biting mosquito collections were made twice a month for the period October 1993 to January 1994, which includes the main monsoonal rainy season. Collections were made both indoors and outdoors in the 2 locations and from 1800 to 0600 h at half hour intervals. Mosquitoes were collected using a hand and mechanical aspirator. Collections made during each 2 h period were grouped together. These were stored at 4°C in the laboratory until identification. Rainfall data were obtained from the Department of Meteorology, Batticaloa.

Mosquito borne diseases prevalent in the Batticaloa district include malaria, dengue fever and Japanese encephalitis. No cases of Bancroftian filariasis have been reported. Number of deaths caused by Japanese encephalitis during

the study period is 4. Generally, the incidence of the diseases was higher during the monsoonal rains (October to January). The mosquito collections made at Vantharumoolai include *Culex quinquefasciatus* (94.71%), *C. sitiens* (3%), *Mansonia* spp (1.49%) and *Aedes* spp (0.07%). Species collected in Batticaloa town were *C.fuscocephala* (56.17%), *C.quinquefasciatus* (38.5%), *C.sitiens* (3%), *Mansonia* spp. (1.6%) and *Anopheles* spp (1.6%) the latter included *A.nigerrimus*, *A.subpictus* and *A.jamesii*. These include known vector of filariasis (*C.quinquefasciatus*), dengue (*Aedes* spp), Japanese encephalitis (*C.fuscocephala*) and malaria (*A.subpictus*). A total of 1480 mosquitoes were collected at Vantharumoolai and 594 in Batticaloa town ($F_{1,191} = 70.15$, $p=0.001$). The Shannon diversity index for the pooled data between the 2 sites were different ($p<0.001$, t test, $DF = 7.179 \times 10^4$, 8.21 , $p=0.005$). Human night biting rates (HBR) of *C. quinquefasciatus* was highest in January ($F_{3,191}=25.57$, $p=0.001$ whereas *C.fuscocephala* collections were highest in December ($F_{3,191} = 30.46$, $p=0.0001$).

This preliminary study indicates that mosquito species with potential of transmitting malaria, dengue fever, Japanese encephalitis and filariasis are present in the 2 locations in the district. *C.quinquefasciatus* is the most abundant species in Vantharumoolai while *C.fuscocephala* is found in abundance in the urban area. Although no cases of filariasis have been reported the vector of this disease is also present.