VECTORS AND TRANSMISSION OF MALARIA IN A CANAL AND TRADITIONAL NATURAL STREAM IRRIGATED AREAS IN SRI LANKA

A PROJECT REPORT PRESENTED BY

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To the Board of Study of Statistics and Computer Science of the

POST GRADUATE INSTITUTE OF SCIENCE

in partial fulfillment of the

requirement for the award of the degree of

MASTER OF SCIENCE IN APPLIED STATISTICS

Of the

UNIVERSITY OF PERADENIYA

SRI LANKA

2007

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Culicifacies and *Subpictus* are considered as primary and secondary vectors of malaria in Sri Lanka respectively . Study was carried out to determine the population dynamics of anophelines in canal irrigated and traditional stream irrigated area and possible impact on malaria transmission.

For years 1997 and 1998 the proportions of *culicifacies* and *subpictus* adults collected from cattle baited huts and traps in the canal and natural stream irrigated areas were compared using Mann Whitney test. Both vectors and anophelines larvae per 100 dips collected from irrigated canals in the Dambulla area and natural streams in Galawela area were compared using Mann Whitney test. Incidence rates of malaria cases positive for *P.vivax* and *P. falciparum* were statistically analyzed using chi-square test. Dependence on climatic variables to the number of patients in Galewela and Dambulla was analyzed using multiple regressions. Two groups 1997/1998 and 1997/2002 were considered separately and the dummy variable corresponding to monthly rainfall used in the aim of getting the best model.

. The commonest species encountered in the both areas were *nigerrimus* and *vegus* no. of primary vector, *culicifacies* (p= 0.004) and secondary vector *subpictus* ((p = 0.008) collected using cattle baited huts and traps from the natural stream irrigated area were significantly higher than the canal irrigated area. Similarly both vectors and all anopheline larvae ((p = 0.0019) collected in the natural stream irrigated area were significantly higher than the canal irrigated area. The incidence rates of malaria fever by 12 month survey in the two areas were 10 and 32 in Galewela and Dambulla respectively. The incidence rates of malaria fever of natural stream irrigated were significantly higher than the canal irrigated area.(χ^2 = 650.25, df =1, p<0.001) . LG3 was the best regression model for the number of patients and meteorological data a month before in Galewela 1997/1998 (R^2 = 87.79, DW = 1.8541). In the same group, For Dambulla LD3was the best regression model for the number of patients and meteorological data a month before (R^2 = 62.5, DW = 1.91). In the group 1997/2002 there was no significant relationship between number of patients and meteorological data for Dambulla. But, for Galewela, the best model was LG5 in the same group (R^2 = 93.84, DW = 2.11).