A-23: A study on malaria transmission by two anopheline vectors in the Galewela area

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This study investigated the abundance, malaria sporozoite rate (SPR) and human blood index (HBI) of two malaria vectors (*Anopheles culicifacies* and *An. subpictus*) to complement investigations to rationalize insecticide use in malaria control. The study was done in 2 malaria-endemic villages in Galewela, Matale District. Mosquitoes were collected at fortnightly intervals using bovid-baited trap huts (CBTH) and indoor resting catches (IRC). Parasite carriage and blood meal indices were investigated using an Enzyme-linked Immunosorbent Assay. Information on the use of bed nets and coils, number of blood-film diagnosed malaria cases, and insecticide spray coverage was obtained.

In total, 1453 *An.culicifacies* and 1630 *An. subpictus* females were collected. More *An.culicifacies* were taken from trap huts than *An. subpictus*, whereas indoor resting collections yielded more *An. subpictus* than *An. culicifacies*. In *An. culicifacies*, circumsporzoite antigens of *Plasmodium falciparum* (SPR =0.001), *P. vivax* (SPR= 0.001) and *P.vivax* polymorph (SPR = 0.002) were detected. For *An.subpictus* the corresponding SPRs were 0.005, 0.001, and 0.003, respectively. The overall HBI was higher for *An. culicifacies* (CBTH=0.04, IRC=0.20) than *An. subpictus* (CBTH =0.04, IRC=0.02). Bed nets were used by 38%, coils by 66%, and no protection by 15% of the house

holders. Residual insecticide (malathion) spray coverage of houses was 100%. In general, malaria incidence peaked during the periods April – July and October –January, with a total of 44 human cases (*P. vivax=36; P. falciparum 8*) reported from the study site.

Malaria transmission occurred despite chemical-based vector control methods. Close monitoring of vector populations and their potential for parasite carriage combined with resistance studies will be useful in the selection of site-specific insecticides for malaria control.

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