A-31: Identifications of the source of blood meals of wild caught *Anopheles culicifacies* and *An.subpictus* using gel diffusion technique

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Anopheles culicifacies is the major vector of malaria in Sri Lanka. *An.subpictus* has also been identified as a vector of malaria in certain localities. 'Human blood index' is one of the major components which contribute to the 'Vectorial capacity' which is a measurement of a possible involvement of a particular species to malaria transmission. Human blood index can be determined by identification of source of blood meals of mosquitoes in a given area.

Smears of blood meals of freshly fed mosquitoes were obtained on filter paper sheets (Whatman No.3), specially prepared for this purpose. Smears collected from different areas were then transported to the Entomological Laboratory of the Anti-Malaria Campaign for further processing. Glass slides (25mm x 100mm) were coated with agarose dissolved in distilled water and barbiturate buffer. A concentrated solution of agarose prepared with the same solvents was then added to form a gel layer on the slide. Wells were made in the gel layer with a needle-nosed pipette (1 mm diameter). A plastic template was used to guide cutting of wells. The blood smears were dissolved in saline water. Different wells were loaded with human and cow antisera and normal sera (rabbit) and blood smears extracted in saline (antigen) in such a manner to expose each antigen loaded well to human and cow antisera and normal sera. Formation of white bands with respective antisera wells indicating the source of blood become visible if the blood meal smears were taken within 24h after feeding.

A total of 1239 blood smears of *An.culicifacies* and 1476 of *An.subpictus* were examined during 1989-1991. The results revealed that 35% of *An.culicifacies* and 0.5% smears of *An.subpictus* were positive for human blood. 40.8% of *An.culicifacies* and 85.4% of *An.subpictus* smears showed a positive reaction for cow blood. The human blood indices of *An.culicifacies* for different provinces were, Central 45.5%(n=178),

North-central 36.8% (n =190), North-eastern 18.5% (n=27), North-western 31.8% (n=745), Sabaragamuwa 20.4% (n=54), Uva 69.4% (n=36) and Western 55.5% (n=9). Similarly for *An.subpictus* Central 0% (n=40), North-central 0.9% (n=102), North-eastern 0% (n=214), North-western 0.3% (n=755), Sabaragamuwa 0.4% (n=229), Southern 0% (n=56) and Uva 3.75% (n=80).

Although *An.culicifacies* is well known to be a zoophilic species preferring cattle blood, the results of this investigation shows it to be more anthropophilic compared to *An.subpictus*. Thus the presence or absence of cattle around human habitations will be an important factor for *An.subpictus* to play a role in malaria transmission in Sri Lanka.