

Physico-chemical characteristics of *Anopheles culicifacies* and *Anopheles varuna* breeding habitats in a dry zone stream in Sri Lanka

Physico-chemical characteristics of water in streambed pools that generate two malaria vectors, *Anopheles culicifacies* and *An. Varuna*, were investigated in 1997-1998 at the Yan Oya stream, Huruluwewawa watershed, in North Central Sri Lanka. Water samples from 113 pools were analyzed, the mean (range) values for 17 tested parameters being as follows; Temperature=30.0(25.4-37.6)C ; Dissolved oxygen=2.3 (0-12.5)ppm; pH =7.8(7.93); Conductivity = 791.2 (21.9-1921) μ S; total dissolved solids = 385.7 (1-963)ppm; Alkalinity=665.8(0-1400) ppm; Ammonia Nitrogen=1.8(0.80)ppm; Nitrate Nitrogen=0.1(0-0.4)ppm; Calcium=335.2(103.2-.8)ppm; Magnesium=1087.5(0.3096)ppm; Carbon dioxide = 11.4 (0-65)ppm; Chloride =183.4(40-2800)ppm; Colour 5.590-24 ppm; Ferrous=3.3(0-40)ppm; Phosphate=0.2(0-05) ppm; Turbidity 29.6(2-200)ppm and Silica=26.6 (0.80)ppm. Statistical analysis (using data reduction by factor analysis followed by multiple regression of significant factors with vector abundance) showed that the abundance of *An.culicifacies* larvae was positively related to temperature, pH and dissolved oxygen. There were no statistically significant associations between breeding water characteristics and the abundance of *An. Varuna*. The present and previous

studies indicate that highly oxygenated water is a key breeding requirement for the major malaria vector in Sri Lanka.