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Relationship between water quality parameters in rock pools with the *Anopheles* larvae in the Ampara District

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During the last few years, *Anopheles* mosquito larvae have been found in different types of diversified aquatic habitats. Literature suggests that *Anopheles* larvae are likely to breed in areas of shallow surface water. Of such breeding habitats in the Ampara District rock pools are of highest concern. Therefore, this study aimed at determining how physical water characteristics of rock pools affected the abundance of *Anopheles* larvae in the Ampara District.

Four possible malaria sensitive areas, Dehiattakandiya, Maha Oya, Thirukkivil and Panama were selected for the study. Rock pools (n = 28) were monitored during the period from May 2013 - April 2014 while 336 water samples were analyzed. Physico-chemical parameters such as Dissolved Oxygen (DO), conductivity, salinity, pH, temperature, Total Dissolved Solids (TDS) and turbidity were recorded in each breeding site. Pearson correlation analysis was used to assess the relationship of the density of Anophelines with physicochemical parameters of water in breeding sites. Out of the total 713 larvae, the highest relative abundance (35.2% of malaria larvae) was shown by *An. nigerrimus* while *An. pseudojamesi* showed the lowest (0.28%). The relative abundance of *An. peditaeniatus*, *An. vagus*, *An. jamesii*, *An. pallidus*, *An. annularis*, *An. barbirostris* and *An. subpictus* in rock pools were 29.73%, 14.38%, 8.84%, 4.21%, 4.07%, 1.54% and 1.26% respectively. The mean (range) values of the parameters analyzed in the water samples were; TDS 364.7 (118.0-658.0) mgL⁻¹, conductivity 409.8 (197.2-570.3) μScm⁻¹, salinity 177.43 (93.20-273.80) mgL⁻¹, DO 3.536 (1.95-5.800) mgL⁻¹, turbidity 9.48 (3.00-41.30) NTU and pH 7.9090 (7.0800 -8.6800). All larval species showed no significance association (p > 0.05) with the physico-chemical parameters of water in rock pools in the study area. However, the relationship between the abundance of mosquitoes and the rainfall was significant (p < 0.001). In conclusion, the malaria larvae show no sensitivity towards changing water quality though their abundance increases with the rainfall. An extension of this study, focusing on other potential breeding places in the same area will be helpful to discover more diversified relationships, which will eventually support the effective malaria vector eradicating programmes.

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