

## **The feeding patterns and food preferences of *Aplocheilus parvus*: a potential biological control agent for malaria?**

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The ultimate aim of Anti Malaria Campaign is to eliminate indigenous malaria from Sri Lanka. Better environmental and economic benefits could be achieved by the use of indigenous fish species compared to chemical controlling methods as they have minimum or no impact on the existing aquatic fauna. *Aplocheilus parvus* is a common indigenous species available in both lotic and lentic systems in wet, intermediate and dry zones and is one of the surface feeding predators. The feeding pattern and food preference of *A. parvus* was determined to test its efficacy as a biological control agent for malaria larvae. A 24 hour sampling for *A. parvus* was conducted (n=12 fish every 2 hours) at a brick pit in Pannala MOH region in Northwestern province positive for potential malaria larvae (*Anopheles jamesii*, 0.116/dip) between September 2011 January 2012. Gut fullness, total and standard length of fish, total weight and gut weight and using copepod as an arbitrary unit, total number of food items per 1ml of dissolved gut was calculated with a Sedgewick Rafter Cell . The time at which active feeding occurred was established from total food particle amount and relative gut weight (gut weight/total weigh×100). Diet of *A. parvus* mainly consisted of adult or larval stages of class Insecta (Coleoptera, Hymenoptera and other unidentified insect parts and insect larvae) and class Maxillopoda (Copepoda). Also, gut had a higher fullness in day time (4.3±0.121) compared to night (2.4±0.120) (p<0.001). A time sex interaction explained the gut fullness with males having a peak gut fullness during 1630 hours whilst females had the peak gut fullness at 1230 hours (p<0.001). Copepods were detected mostly during 0830- 1030 hours (p<0.001), whilst insect parts and Coleopterans were present in all time periods (p<0.001). Results confirmed the suitability of *A. parvus* as a potential surface feeding biological control agent for malaria larvae.