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Effect of lavivorous fish on the control of Aedes dengue/DHF vector mosquitoes in ground level water storage cement tanks

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Dengue and Dengue hemorrhagic fever is becoming one of the major public health problems in Sri Lanka. Ground level domestic water tanks are among the major breeding places of dengue vectors in areas where there is no reliable water supply. One possible means of control of *Aedes* dengue vectors is biological control. The aim of this study was to investigate the lavivorous potential of different species of fish to control *Aedes* larvae in the ground level water storage cement tanks in Matale district. Three exotic and four native species of fish were collected from different water bodies in Matale district using a nylon hand net. The fish species found were *Oreochromis niloticus, Oreochromis mosambicus, Poecilia reticulata, Puntius filamentosus, Puntius nigrofasciatus, Rasbora daniconius,* and *Rasbora caverii.* The results of the laboratory study to determine larvivorous potential of above seven fish species *showed* that three introduced fish species*; Oreochromis mosambicus, Poecilia reticulata and Oreochromis niloticus* had higher larvivorous potential than the four native fish species; *Puntius filamentosus, Puntius nigrofasciatus, Rasbora daniconius,* and *Rasbora caverii.*

Twenty ground level water storage cement tanks positive for Aedes larvae each approximately similar in size and depth of water level were selected to determine the feasibility of using these fish species in the control of Aedes vectors. These breeding places were randomly assigned for application of *Oreochromis mosambicus* and *Rasbora daniconis* and *Poecilia reticulata* were introduced at the rate of 5 fish/m^3 (2 males:3 female) and five water storage tanks left as controls. Each treatment was replicated five times. The density of fish and mosquitoes was monitored using a well net every other day for three months. The results of the field study showed that both introduced species, *Oreochromis mosambicus* (t =5.594, df=11, p=<0.001) and *Poecilia reticulata* (t=5.635, df=11, p=<0.001) as well as native fish, *Rasbora daniconis* (t=4.330, df=11, p=<0.001) achieved 100% reduction of Aedes larvae 1,5 and 7 days after introduction of these fish species respectively. This study demonstrates the feasibility of using *Oreochromis mosambicus, Poecilia reticulata* and *Rasbora daniconis* in the control of *Aedes* dengue vector breeding in ground level water storage cement tanks.

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