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Study of the Ecological Factors that Affect the Distribution and Abundance of *P. reticulata* (Guppy) Population in Sri Jayewardenepura Canal System**Pethiyagoda P.D.R.S.* , De Alwis S.M.D.A.U., De Silva B.G.D.N.K.**Department of Zoology, *University of Sri Jayewardenepura, Gangodawila, Nugegoda***ravipethiya@yahoo.com***Abstract**

Poecilia reticulata (Guppy) was first introduced in the 1930's from Central America to dry zone and Western province of Sri Lanka as a bio control agent for mosquito larvae and since has widely distributed across North Western, Western and Southern provinces, living in a variety of aquatic habitats such as streams, marshes, paddy fields as well as ditches in urban areas and has an ability to survive in polluted water and tolerate extreme environmental fluctuations. This species is the one of the most abundant in the Sri Jayewardenepura canal system. The present study was carried out to investigate the ecological factors affecting the distribution and abundance of *P. reticulata* population in Sri Jayewardenepura canal system. Fish and water sampling were carried out from 6 sampling sites once a month, (from January to December 2016). Water quality parameters investigated were pH, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), electrical conductivity, temperature, hardness, alkalinity, nitrate and phosphate. Water flow rates and water depths of all sampling sites were also recorded. *P. reticulata* was found to be the most abundant species in all sites, higher populations occupying slow moving shallow water. Environmental parameters observed revealed the fact that all the sites have been subjected to moderate or high pollution and most conspicuous were the DO and BOD levels. Mean DO values ranged between (0.83-2.33 mg/l) which were lower than the recommended level for aquatic life (minimum of 3 mg/l) in all sites, which have reached levels that are potentially harmful for fish. Similarly, a maximum BOD value of 4mg/l is recommended as the suitable level for aquatic life but the recorded values at selected sites were considerably high (3.86-8.32 mg/l) indicating organic pollution and an abundance of oxygen-requiring micro-organisms in the water. Polluted water quality of sites were further confirmed by high values for Nitrate (3.85-10.455 mg/l), Phosphate (1.90-3.19 mg/l), Electrical Conductivity (224-892 $\mu\text{s/cm}$), Hardness (80.0-127.92 mg/l) and Alkalinity (70.67-179.17 mg/l). However, there was no effect of polluted water quality on the distribution and abundance of *P. reticulata* as all sites recorded high densities of (125.0 \pm 35.7/m²). However there was a marked difference in the adult sizes of fish, where both the adult males and females were smaller (Female-35 mm, Male-25 mm) than previous records (Female-60 mm, Male-40 mm) for the study area. This may be an indication that these adverse environmental conditions are affecting their growth rates.

Keywords: Guppy, Environment parameters, Polluted water, Fish density