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Impact of sailfin cat fish (*Pterygoplichthys disjunctivus*) on reproduction output of guppy *Poecilia reticulata* under laboratory conditions

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South American sailfin catfish (*Pterygoplichthys* spp.) popularly known as tank cleaner is one of the accidentally introduced invasive fish into the natural freshwater habitats of Sri Lanka. External morphological analysis showed the presence of two *Pterygoplichthys* species (previously misidentified as *Hypostomus plecostomus*) in Sri Lankan waters, namely *P. disjunctivus* and *P. pardalis*. Sailfin catfishes affect the environment by competing with native algae-grazers, direct predation on bottom-attached eggs of other fish, bank destabilization by burrowing behavior to lay their eggs. This fish also cause economic damage to fresh water fisheries in Sri Lanka. This laboratory experiment was conducted to investigate the impact of *P. disjunctivus* on the reproductive output of *Poecilia reticulata*, one of the common exotic fish found in the natural freshwater habitats in Sri Lanka. The study was conducted from January to May, 2014 in nine glass aquaria with a size of 90 cm x 30 cm x 30 cm. Ten, healthy and mature *P. reticulata* fishes with male to female ratio of 2:3 and 20 g of *Hydrilla* plant were introduced to all the tanks. Females without swollen bellies were selected for the study. Three sailfin catfishes bred in a commercial aquarium (treatment one) and three sailfin cat fishes collected from the wild environment (treatment two) were stocked into six treatment tanks while the other three tanks served as controls. Tanks were arranged randomly. Average length and weight of aquarium bred catfishes were 6.0 ± 0.3 cm and 16.8 ± 1.5 g, respectively. The same parameters in the wild caught catfishes were 6.2 ± 0.5 cm and 18.8 ± 1.8 g, respectively. Water quality parameters such as DO, temperature and pH were measured in all the experimental tanks once a week. Fish were fed 5% of their body weight twice a day using a commercial fish feed and excess feed was siphoned out. Fish behaviour and emergence of larvae were carefully monitored daily. Larvae born in each tank were counted and removed twice a week.

DO, pH and temperature in treatment one (8.6 ± 0.6 mg/L, 7.6 ± 0.08 , 27.7 ± 0.2 °C; respectively) and treatment two (8.8 ± 0.3 mg/L, 7.5 ± 0.08 , 27.6 ± 0.4 °C; respectively) were not significantly different from the same parameters in the control (8.6 ± 0.6 mg/L, 7.5 ± 0.05 , 27.7 ± 0.5 °C; respectively). *P. reticulata* larval counts were significantly higher in control tanks than the treatment tanks after the experimental period (One way ANOVA, $P < 0.05$). The total number of *P. reticulata* larvae recorded at the end of the experiment in the tank stocked with wild caught and aquarium bred sail fin cat fishes were 37 and 43, respectively. Number of *P. reticulata* larvae recorded in the control tanks was 102 during the same period. Larval numbers recorded in treatment and control tanks did not decrease in consecutive days indicating non predatory behaviour of both fish species. According to the results the presence of sailfin catfishes negatively affected the breeding behavior of *P. reticulata* under captive conditions. Aquarium bred catfishes and wild caught catfishes showed a similar impact on the reproductive output of *P. reticulata*. *P. disjunctivus* and *P. reticulata* did not attempt to predate on fish larvae and this observation is in conformity with their feeding



habits. Further research is warranted to study the impact of sailfin catfishes on the breeding behaviour of native fish species in Sri Lanka.

Keywords: Breeding effects, *Pterygoplichthys*, sailfin catfish, invasive, *P. reticulata*

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