

Suitable ranges of some environmental and water quality parameters affecting to the breeding ability of some endemic fish species in captivity.

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Abstract

Some endemic fish species found in Sri Lankan fresh waters have a high demand and high ornamental value in the export market. But due to human activities, the population of such endemic species are declining in their number and hence they are categorized under threatened and/or endangered species. Some high demanded ornamental endemic fish species are prohibited for export and the rests are under restricted list. These restricted species which are bred in captivity can be exported under permit ion of the ministry of fisheries and Aquatic Resources.

Water quality parameters have been found to affect their breeding ability and it may affect to the survival of fry and finger lings also.

The study consisted of six endemic fish species namely *Puntius nigrofasciatus* (Bulath hapaya), *Puntius cuningii* (Depulliya), *Puntius titteya* (Lay thiththeya), *Rasbora vaterifloris* (Halmal dandiya), *Belontia signata* (Thalkossa) and *Danio pathirana* (Pathirana salaya) which were categorized under restricted list. Fish were kept in 5 x 3 x 2.5 cement tanks with water depth of 24". They were fed with live feed such as moina, mosquito larvae, ground ox heart as well as artificial pelleted fish feed. They were provided natural breeding environment using some kinds of aquatic plants and stones.

Average temperatures recorded in the fish tanks during the study period were 28.8 ± 1.2 , 28.45 ± 1.03 , 28.43 ± 1.09 , 28.39 ± 0.84 , 28.33 ± 1.06 and 28.6 ± 1.04 for above said six fish species respectively. Average pH values were 9.07 ± 0.7 , 8.78 ± 0.65 , 8.58 ± 0.71 , 8.29 ± 0.9 , 8.66 ± 0.62 and 8.6 ± 0.65 respectively. Average alkalinity were recorded as 44.2 ± 11.7 , 51.9 ± 11.60 , 52.16 ± 8.5 , 45.94 ± 11.54 , 50.51 ± 9.34 and 45.22 ± 9.27 respectively and the hardness values were 44.3 ± 5.9 , 54.34 ± 6.26 , 49.6 ± 11.01 , 46.22 ± 12.54 , 51.55 ± 7.88 and 48.66 ± 7.16 respectively.

Survival rates of fish fry were 75% - 92% for all fish species.

This study concludes that most of highly demanded endemic fish can be bred in captivity. Water quality parameters should be maintained close to their natural conditions which may aid the success of breeding activities.