

Effect of the sub-lethal concentrations of weedicide, 'Glyphosate' on the reproductive behaviour of *Oreochromis mossambicus* (Peters)

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African cichlids are important constituent species in tropical inland fisheries and *Oreochromis mossambicus* supports profitable fisheries in many tropical countries such as Sri Lanka. This species exhibits elaborate courtship behaviour. Building of spawning pits by males, aggressive behaviour and breeding colouration are important behavioural patterns of this species associated with reproduction.

Due to improper uses of agrochemicals in Sri Lanka, reservoir populations of *O. mossambicus* are vulnerable to exposure to them at least at sub lethal levels. As 'Roundup' (Glyphosate) is one of the widely used weedicides in Sri Lanka, the present study was undertaken to investigate its effect on reproductive behaviour of *O. mossambicus*.

Adult breeding-sized *O. mossambicus* of both sexes were collected from Negombo estuary and were exposed to four different sub-lethal concentrations (0 ppm, 5 ppm, 8 ppm and 10 ppm). The colour change in males, aggressive behaviour of nest builders, and approximate area of home range that each nest builder maintained were determined. The experiment was replicated three times. Physico-chemical parameters in water i.e., dissolved oxygen, temperature, conductivity, chemical oxygen demand, biological oxygen demand and pH were determined using standard techniques.

Water quality parameters in test aquaria with Roundup were not appreciably different from each other. The three concentration of Roundup tested had significant negative effects on the reproductive behaviour measured as chasing distance of males, chasing occurrence of males, dorsal fin erection of males, frequency of bites of males and area of the home range maintained by nest builders. The highest chasing directions were observed in control tank and the chasing distance decreased with increasing Roundup concentration. The degree of colour change of males was also affected by Roundup concentration.

As Roundup brings about alteration of reproductive behaviour of *O. mossambicus* at the concentration which are much lower than the recommended concentration in agricultural lands, there may be long term adverse effects of Roundup on *O. mossambicus* populations in reservoirs. Hence, control of Roundup application in agricultural lands is necessary for the proper management of inland fishery of Sri Lanka.