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Starvation as oxidative stress biomarker in two Indian snakeheads, *Channa striatus* and *Channa marulius*

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ABSTRACT:

Background:

Snakehead species viz: *Channa striatus* and *C. marulius* are unique group of freshwater air breathing fishes well known for their medicinal and recuperative properties. Levels of antioxidant enzymes was used as an indicator and biomarker for the oxidative stress experienced by both the species when subjected to four weeks of starvation and re-feeding.

Materials and methods:

C. striatus and *C. marulius* reared at CARE Aquafarm were starved for a period of 4 weeks followed by a re-feeding for 4 weeks. Four fish of each species were sampled on 0, 2nd and 4th week of starvation and also on 2nd and 4th week of re-feeding. Tissue homogenates were subjected to antioxidant enzymes analyses viz: catalase, super oxide dismutase, glutathione peroxidase, glutathione-S tranferase, glutathione reductase, total reduced glutathione and lipid peroxidation.

Results:

Enzymatic antioxidants like CAT, SOD, GPx, GST and GR were found to be induced in all the three tissues like muscle, liver and gills tested. Lipid peroxidation was also augmented to a greater extent and reduced below normal when the starvation was extended.

Conclusion:

The activities of certain antioxidant enzymes slightly increased and gradually decreased during later period of starvation or initial re-feeding period, which shows that the immune functions were triggered to protect themselves from the unfavourable condition of food deprivation. Few antioxidant activities did not return to normal even after re-feeding for four weeks, which shows that the study needs further extension until recovery.

Keywords:

Channa striatus, C. marulius, antioxidants, starvation, lipid peroxidation

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