

## AMMONIA – ASSOCIATED AND ITS WITHDRAWAL – DEPENDENT CHANGES IN GLUTAMATE DEHYDROGENASE OF CATFISH

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**ABSTRACT** – The effects of ammonium chloride on glutamate dehydrogenase (GDH) activities of liver, gill and skeletal muscle and its withdrawal-dependent changes were studied in the freshwater air breathing catfish, *Clarias batrachus*. Initially, ammonia exposure increased GDH activities in different tissues of the fish upto 14 days. Thereafter, the enzyme activities started declining and reached the control level within 35 days in presence of ammonia. Perhaps, after 14 days of ammonia exposure, the catfish turned towards ureotelism from ammoniotelism within 35 days showing no difference in GDH activities between control and treated fish. Withdrawal of ammonia from the medium after 14 days of its exposure showed a complete recovery in GDH activities within next 14 days of withdrawal. However, withdrawal of ammonia after 35 days of its exposure declined the GDH activity below the control level within the next 14 days showing the lack of depurative response. It may be due to ammonia – induced permanent damages in tissues of fish in a long term exposure. Therefore, the responses in GDH activities may be used as a biomarker of ammonia toxicity in freshwater catfish. The depurative strategies may be adopted to ameliorate ammonia toxicity in aquaculture.

**Key words** : Glutamate dehydrogenase, ammonia, cat fish, *Clarias batrachus*.