**Abstract**

Ascorbic acid is known to take part in collagen biosynthesis and in oxidation and reduction reactions of tissues. It is essential for various protective and defensive biological reactions of the organisms and perhaps acts as an antioxidant and fatigue retardant.

*Clariasgariepnus* is an air-breathing fish. The fish is capable of living on land for extended periods. Similarly, its prolonged submergence in oxygenated water is also well established. However, its capacity to endure air-exposure and submergence stress has not been studied. This stress induced pharmacological and biochemical changes are worth studying and hence the present study.

Nine hour air-exposure and submergence stress triggered differential biochemical response in the brain. Air-exposure stress decreased the ascorbic acid content of the cerebral hemispheres (-8.24%), optic lobes (-7.61%), cerebellum (-4.82%) and medulla oblongata (-6.88%) insignificantly. Submergence stress significantly decreased (P<0.05), the ascorbic acid content in all parts of the brain.