The AJAS
THE ASIAN JOURNAL OF ANIMAL SCIENCE
Volume 7 | Issue 1 | June, 2012 : 19-22

*RESEARCH ARTICLE*

# Seasonal variation in blood parameters of African air-breathing catfish, *Clarias gariepinus*

SEEMA GUPTA AND P. MISHRA

**ABSTRACT -** Hematological studies in fish can provide valuable information on the effect of the external environment on the internal physiology of fish. Therefore, the seasonal effect of the environment can change the piscine blood physiology. In the present study, an attempt was made to evaluate the seasonal variation in blood parameters of African cat fish, *Clarias gariepinus* (Family- Clariidae). This fish is intensively cultured in many tropical and subtropical regions of world. Different hematological indices like red blood corpuscles (RBC), white blood corpuscles (WBC), haemoglobin (Hb %), haematocrite (PCV) and erythrocyte indices like mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean corpuscular haemoglobin concentration (MCHC) were determined using standard methods. The result of present study revealed a statistically significant season effect in RBC ($p<0.05$), WBC ($p<0.001$), Hb% ($p<0.01$) and PCV ($p<0.001$). The results of the red cell indices showed a highly significant ($p<0.001$) season effect in MCV and MCHC only.

**KEY WORDS** - *Clarias gariepinus,* Hematology, Red cell indices, Season

**HOW TO CITE THIS ARTICLE -** Gupta, Seema and Mishra, P. (2012). Seasonal variation in blood parameters of African air-breathing catfish, *Clarias gariepinus. Asian J. Animal Sci.,* **7**(1) : 19-22.

**ARTICLE CHRONICLE -** Received : *25.11.2011;* Sent for revision : *29.03.2012;* Accepted : *29.04.2012*

**Author** for Correspondence -
**PREETI MISHRA**
Department of Zoology and Biotechnology, Government N.P.G. Science College, RAIPUR (C.G.) INDIA
Email: pmishra26463@gmail.com

See end of the article for **Coopted authors'**

## INTRODUCTION

Fishes live in very intimate contact with their environment and are very susceptible to minor physical and chemical change in the surrounding. These changes can alter their physiology which may be assessed by blood parameters. The use of haematological indices in assessment of fish physiology was proposed by Hesser (1960), since then hematology has been used as an index of fish health status in a number of fish species to detect physiological changes, as a result of exposure to different environmental conditions such as handling, pollutants, metals, hypoxia, anaestehtics, season and acclimation (Blaxhall, 1972; Duthie and Tort, 1985; Ogbulie and Okpokwasili, 1999; Alwan *et al*., 2009). Fernades and Mazon (2003) reported that fish blood is closely related to its response to changes in the environment where it lives, (natural or artificial) and it plays an important role in the normal functioning of the body, its constituent and their variation in different season adds a great deal to our knowledge on piscine blood. A characteristic feature of all ectothermic animals including fish is a wide physiological range of blood composition and a large individual variation, resulting among others from the fact that they are under a great effect of environment. So, the present study was undertaken to investigate the effect of seasonal changes in the environment on the blood parameters of the African sharp toothed catfish, *Clarias gariepinus* (Bruchell, 1822) which is a native species of Africa and Middle East. Presence of *Clarias gariepinus* in Indian fish markets is known since 1993 (Lal *et al*., 2003). It is hypothesized to have been brought in from Thailand through Bangladesh (Thakur, 1996). It is large eel like nocturnal and fast growing fish, usually dark grey or black colouration on the back, fading to a white belly. It is hardy and can tolerate adverse water conditions. Therefore, they are widely distributed around the world. They are mainly omnivorous