Title: Haematological and serum biochemical characterization and comparison of wild and cultured northern snakehead (Channa argus Cantor, 1842)

Author(s): Y. Gul¹, Z. X. Gao¹, X. Q. Qian² and W. M. Wang¹

¹College of Fisheries, Key Laboratory of Freshwater Biodiversity Conservation and Utilization, Ministry of Agriculture, Key Laboratory of Agricultural Animal Genetics, Breeding and Reproduction of Ministry of Education, Huazhong Agricultural University, Wuhan, China;
²Animal Husbandry and Fisheries Research Center of the Haid Group Co., Ltd, Guangzhou, China

Date: March 05, 2012

Publication Number: CRSP Research Report 11-282

The objective of this study was to compare haematological and serum biochemical parameters of cultured and wild specimens of the northern snakehead, Channa argus, to establish baseline values. Thirty sexually immature and disease-free wild fish (37.70 ± 13.68 cm total length, 555.3 ± 449.0 g weight) and 30 cultured fish (36.82 ± 1.72 cm total length, 450.5 ± 58.8 g weight) were examined. In cultured northern snakehead, the average values of alanine aminotransferases (370.1 IU L⁻¹), aspartate amino transferases (1145.3 IU L⁻¹), albumin (15.84 g L⁻¹), direct bilirubin (6.15 µmol L⁻¹), urea (1.40 mmol L⁻¹), glucose (21.54 mmol L⁻¹) and cholesterol levels (6.60 mmol L⁻¹) were significantly higher (P < 0.05) than in the wild fish. In wild specimens the corresponding values were 9.81 IU L⁻¹, 394.1 U L⁻¹, 2.57 µmol L⁻¹, 2.36 and 4.38 mmol L⁻¹, respectively. No significant difference (P > 0.05) was found for total protein, globulin, total bilirubin, chromium, sodium, chloride or triglyceride levels between wild and cultured populations. The mean values of the red blood cell (RBC) counts, hematocrit, haemoglobin, and mean corpuscular volume (MCV) were significantly higher (P < 0.05) in the cultured population, while the values of the white blood cell (WBC) counts, erythrocyte sedimentation rate (ESR), mean corpuscular haemoglobin (MCH), and mean corpuscular haemoglobin concentration (MCHC) were significantly higher (P < 0.05) in the...
Continued...

wild population. The study showed that the environmental conditions significantly impacted the status of the fish. It is suggested that these physiological parameters can be conveniently employed as health monitoring tools in fish culture practices.

This abstract was excerpted from the original paper, which was published in the Journal of Applied Ichthyology (2011) 27: 122–128.