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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

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

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Abstract: 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, 12.90 g L⁻¹, 2.57 μmol L⁻¹, 0.97, 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

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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.

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