Minerals, amino acids and fatty acids profile of two different species of catfish epidermal mucus

ABSTRACT

The minerals, amino acids (AAs) and fatty acids (FAs) profile of the epidermal mucus of Clarias gariepinus (African catfish) and Clarias sp. (local catfish) were determined. Minerals were identified by using atomic absorption spectrophotometer (AAS) and inductive coupled plasma mass spectrometry (ICPMS), amino acids by high liquid performance chromatography (HPLC) and fatty acids by gas chromatographic with flame ionisation detector (GC-FID). The levels of macroelements (K, Na, Mg, Ca and P) in the epidermal mucus of Clarias sp. were higher than in the C.gariepinus while the concentrations of trace elements (Cu, Zn, and Fe) of both catfish species are lower than the toxic levels described by FAO/WHO. The high level of AAs total content was found in Clarias sp. epidermal mucus (83.72 mg g-1 fresh weight) mainly essential amino acids (EAA), where the EAA/total AA ratio (50.75 ± 0.423 mg g-1 Fresh Weight) were comparable to FAO/WHO requirements. The epidermal mucus of Clarias sp. contained high amounts of polyunsaturated fatty acids (PUFAs) as compared to saturated fatty acids (SFAs) and monounsaturated fatty acids (MUFAs) while SFAs were found higher in C.gariepinus. This study suggested that local catfish, Clarias sp. despite of cultured (African) catfish, C.gariepinus, could be potentially used as ingredients to improve nutritive value and texture of functional foods for human consumption.