

## **Effect of different acids during collagen extraction the bone and fins from purple-spotted bigeye (*Priacanthus tayenus* Richardson, 1846) and their physicochemical properties**

### **ABSTRACT**

This study was carried out to determine the effectiveness of different acids (acetic, lactic and citric)-on the extraction of collagen from the bone and fins of purple-spotted bigeye (*Priacanthus tayenus* Richardson, 1846) particularly on the yield and physicochemical properties. The physicochemical properties were characterized by electrophoretic pattern, X-ray diffraction, FT-IR, colour and pH. The citric acid-extracted collagen (CAC) has a higher percentage of yield ( $1.93\pm 0.57$ ), followed by lactic acid-extracted collagen (LAC) ( $1.43\pm 0.42$ ) and acetic acid-extracted collagen (AAC) ( $0.83\pm 0.18$ ) although those collagens did not differ significantly ( $p>0.05$ ), and those acid solubilized collagens (ASC) contained about 96.82 - 96.89 mg/g of hydroxyproline. The ASCs obtained showed similar electrophoretic patterns due to the presence of identical  $\alpha$  chains ( $\alpha 1$  and  $\alpha 2$ ) and classified as type I collagen. UV absorption spectrum in all ASCs was approximately around 231.0 - 231.5 nm. For diffraction angle analysis, first diffraction was detected at  $7.23 - 7.41^\circ$  and second diffraction was at  $19.41 - 20.29^\circ$  in all ASCs. Major absorption peaks of FT-IR spectrum, viz. amide A, amide B and amide I-III were present in the collagens with different wavenumbers. The results indicated that the physicochemical properties of ASCs extracted in the present study were comparable with collagens reported from other fish species. The findings suggested that ASCs from purple-spotted bigeye bones and fins could serve as alternative source of collagen in functional food, pharmaceuticals and tissue engineering production, particularly found in acetic acid extracted collagen because of its properties.