

Functional Properties of Collagen from Purple-spotted Bigeye (*Priacanthus tayenus* Richardson, 1846) Bone and Fins Extracted with Different Acids

ABSTRACT

This work aimed to evaluate the functional properties of collagen derived from the bone and fins of *Priacanthus tayenus* (Richardson, 1846) prepared with various organic acids. The extracted collagens yielded 0.83%, 1.43%, and 1.93% of acetic acid-extracted collagen (AEC), lactic acid-extracted collagen (LEC), and citric acid-extracted collagen (CEC), respectively, although no significant differences ($p > 0.05$). The high solubility was detected in all extracted collagen samples under low concentrations of sodium chloride (up to 20 g/L). Acetic and lactic acid-extracted collagens showed the highest solubility at pH 3 and pH 5 for citric acid-extracted collagen. The oil absorption capacity varied from 8.57 mL/mg to 15.94 mL/mg and was significantly the highest ($p < 0.05$) for the AEC sample. Although the highest water absorption capacity was noted in LEC (14.39 mL/mg) compared to AEC (12.44 mL/mg) and CEC (8.30 mL/mg), it is not significantly different ($p > 0.05$). All the extracted samples recorded higher values of foaming ability (from 78.33% to 88.33%) and stability (from 80% to 93.33%) at pH 4. Therefore, the emulsion characteristics comprising the emulsion ability and stability indexes were carried out under acidic pH conditions, and the results showed acetic-extracted collagen had the highest values compared to lactic and citric acid-extracted collagens. Taken together, *P. tayenus* collagens had good functional properties comparable to other collagen sources, supporting its further use in industrial processes.