Title Collagenolytic serine protease in fresh water prawn (*Macrobrachium rosenbergii*): Characteristics and its impact on muscle during iced storage

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Abstract

Proteolytic activity of crude protease extract (CPE) from the hepatopancreas of fresh water prawn (*Macrobrachium rosenbergii*) was studied. Optimal activity of CPE was found at pH 7 and 60 °C when casein was used as a substrate. The activity was strongly inhibited by 10 mM *N*-ρ-tosyl-L-lysine chloromethylketone (TLCK), suggesting that trypsin-like protease was dominant. CPE also showed the collagenolytic activity toward pepsin soluble collagen extracted from prawn muscle. During extended iced storage of 4 days, proteolytic and trypsin activities were found in the first segment of prawn abdomen. These activities were detected in the second segment after 4 days of storage. Heat soluble collagen content was continuously increased during the storage. Nevertheless, no changes in proteolytic activity and heat soluble collagen content were obtained in the abdomen of prawn with the removal of hepatopancreas. Therefore, the release of trypsin-like collagenase from hepatopancreas was most likely responsible for the softening of prawn meat during iced storage.