PROPERTIES OF PROTEASES FROM THE CULTURED MARINE SHRIMP (*Farfantepenaeus subtilis*)

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Understanding of the digestive physiology is important for rational use of type and amounts of feed ingredients used for cultured marine organisms. The aim of this work was to characterize digestive proteases from juveniles of the cultured marine shrimp (*Farfantepenaeus subtilis*) fed with 30% protein. The unspecific activity was 75.70 mU/mL. Specific proteolytic activity of crude extract using benzoyl-arginine-p-nitroanilide (BApNA), succinyl-DL-phenylalanine-p-nitroanilide (Suc-Phe-p-Nan) and leucine-p-nitroanilide (Leu-p-Nan) and were 13.39 mU/mL, 0.27 mU/mL and 0.59 mU/mL respectively. The highest inhibitions were obtained when TLCK (84.53%) and benzamidine (75.72%) were used. PMSF was capable to inhibit 17.24% of the proteolytic activity. The maximum activity was at 55°C using BApNA. By substrate-gel electrophoresis analysis, PMSF inhibited six bands on crude extract. Only one large band was not inhibited by TLCK and benzamidine. TPCK was capable to inhibit this band, which was identified as chymotrypsin. Bestatin showed stronger inhibition of the bands on crude extract of cultured shrimps than wild specimens. The results suggest that trypsin, chymotrypsin and leucine aminopeptidase are present in *F. subtilis* hepatopancreas. This study can be a key step to obtain a correct dietary management and therefore optimize the use of nutrients, minimizing the uneaten feed and metabolic excretions.

Keywords: Chymotrypsin, Leucine aminopeptidase, Marine shrimp, Trypsin.