Characterization and in vitro digestibility of digestive enzyme in Giant black tiger shrimp Penaeus monodon and Giant fresh water prawn Macrobrachium rosenbergii

Abstract

Characterization and in vitro digestibility of digestive enzymes from hepatopancreas, stomach and intestine of adult Penaeus monodon, Penaeus vannamei and Macrobrachium rosenbergii showed that the digestive enzymes: amylase, proteinase, lipase and cellulase had similar characteristics in all 3 species. Amylase had optimum conditions at pH 8.0 and 12.0 temperature 40-50 °C. Proteinases had optimum conditions at pH 6.0-9.0 and 12.0, at 40-70°C for acid proteinase, 50-60 °C for neutral and alkaline proteinases. Lipase had optimum condition at pH 4.0, 9.0-10.0 and 11-12.0 temperature 40-60 °C. Cellulase had optimum condition at pH 8.0, 11.0 and 12.0 temperature 40-60 °C. In vitro digestibility study showed that broken rice, wheat gluten, Spirulina sp and yeast were suitable for digestion with enzymes from adult Penaeus monodon.