

Condition Optimization for Trypsin and Chymotrypsin Activities in Economic Animals

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Abstract : For animals, trypsin and chymotrypsin are the 2 proteases that play the important role in protein digestion and involving in growth rate. In many animals, these two enzymes are indicated as growth parameter by feed. Although enzyme assay at optimal condition is significant for its accuracy activity determination. There is less report of trypsin and chymotrypsin. Therefore, in this study, optimization of pH and temperature for trypsin (T) and chymotrypsin (C) in economic species; i.e. Nile tilapia (*Oreochromis niloticus*), sand goby (*Oxyeleotris marmoratus*), giant freshwater prawn (*Macrobrachium rosenberchii*) and native chicken (*Gallus gallus*) were investigated. Each enzyme of each species was assaying for its specific activity with variation of pH in range of 2-12 and temperature in range of 30-80 °C. It revealed that, for Nile tilapia, T had optimal condition at pH 9 and temperature 50-80 °C, whereas C had optimal condition at pH 8 and temperature 60 °C. For sand goby, T had optimal condition at pH 7 and temperature of 50 °C, while C had optimal condition at pH 11 and temperature of 70-75 °C. For juvenile freshwater prawn, T had optimal condition at pH 10-11 and temperature of 60-65 °C, C had optimal condition at pH 8 and temperature of 70°C. For starter native chicken, T has optimal condition at pH 7 and temperature of 70 °C, whereas C had o optimal condition at pH 8 and temperature of 60°C. This information of optimal conditions will be high valuable in further for, actual enzyme measurement of T and C activities that benefit for growth and feed analysis.

Keywords : trypsin, chymotrypsin, *Oreochromis niloticus*, *Oxyeleotris marmoratus*, *Macrobrachium rosenberchii*, *Gallus gallus*

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