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Autolytic activity and biochemical characteristics of endogenous proteinases in Indian anchovy (*Stolephorus indicus*)

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Abstract

Maximum autolytic activity of Indian anchovy (*Stolephorus indicus*) was found at 60 °C. Autolytic activity decreased with increased NaCl concentration. Remaining autolytic activity at 25% NaCl (w/w) was 52%. Crude proteinase extracts exhibited the highest activity at 60 °C, using either casein or acid-denatured hemoglobin (dHb) as a substrate. Optimal pH of crude extracts was found at 8.5 for casein and 9.5 for dHb. Activity of crude extract decreased >50% when NaCl concentration was greater than 0.1 M. Crude extract was stable for up to 8 h at 4, 30, and 60 °C. Crude proteinase hydrolyzed several synthetic substrates of trypsin, including Boc-Asp(oBzl)-Pro-Arg-MCA, Boc-Val-Leu-Lys-MCA, and Boc-Gln-Ala-Arg-MCA. Soybean trypsin inhibitor (SBTI), leupeptin, phenylmethanesulfonyl fluoride (PMSF), and *N*-tosyl-L-lysine chloromethyl ketone (TLCK) inhibited activities of proteinase, indicating trypsin-like characteristics. Molecular weight of proteinases exhibiting caseinolytic activity at 4.0 M NaCl were estimated to be 63, 53, 46, 40, 35, and 31 kDa, using electrophoresis activity staining.

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Keywords: Indian anchovy (*Stolephorus indicus*); Autolytic activity; Endogenous proteinase; Trypsin-like proteinase
