Production of protein hydrolysates from Caspian shad (*Alosa caspia*) by-products using Alcalase enzyme

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Abstract

Protein hydrolysates were produced from by-products (head, skin and viscera) of Caspian shad (*Alosa caspia*), a major *Clupeonella* species in the Caspian Sea (2016). Hydrolysis was performed at three different times (15, 30 and 60 min), pH 8.5, using commercial enzyme Alcalase and an enzyme to substrate ratio of (1 to 100) by-product at 50°C. The results indicated that, Protein recovery and degree of hydrolysis increased with increasing incubation time (60 min) ($P<0.05$). Protein and lipid content of the hydrolysate were 78.91%, and 0.09%, respectively. The chemical score results showed that hydrolysates could fulfill human amino acid requirements. The protein efficiency ratio showed that hydrolysates had high nutritional value. According to high nutritional values, this can be used as protein source in fish feed.

Keywords: Caspian shad, Enzymatic hydrolysis, Alcalase, Nutritional value.