Isolation and Characterization of Halal Collagen from Chicken Feet

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ABSTRACT

Collagen is the most abundant protein in animal body and commonly used for food, cosmetic and pharmaceutical applications. However, the availability of halal collagen is still limited. In the present study, halal collagen was isolated from chicken feet using acetic acid aided with enzymes bromelain and pepsin, followed by precipitation with NaCl. The non-halal pepsin enzyme was used as control. The yield of the bromelain-soluble collagen (BSC) and pepsin-soluble collagen (PeSC) were 14 and 9% (dry weight), respectively. The collagen isolated was characterized by amino acid composition, polypeptides pattern, structural and thermal property. The collagens output were rich in glycine (~ 20%) and had imino acids (proline and hydroxyproline) content of 16-18%. FTIR spectroscopy showed both collagens were in triple-helix structure. According to the electrophoretic pattern, chicken feet collagen consisted of β-chain with two different α-chains (α1 and α2), and type I collagen was the major component. The denaturation temperature of BSC was 54.14℃, slightly higher than PeSC which was 53.35℃. Therefore, there is a good prospect for halal poultry processing waste such as chicken feet to be utilize as an alternative source for commercial halal collagen.

Keywords: *Halal collagen, chicken feet, characterization*