ID1481

Effect of Habitat on The Functional Properties and Application of Fish Gelatin

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ABSTRACT

Due to their different habitats, distinctive functional properties such as Bloom value, melting and gelling point, viscosity, foaming properties and clarity have been noted. Cold water, warm water, pelagic and demersal fishes have been alternative source of raw materials for gelatin. Cold water and pelagic fishes Bloom values are in the range 90-150 g, whereas warm water and demersal fishes have a higher range of Bloom value (180-270 g). This occurrence is also equivalent with gelling and melting point where cold water and pelagic fish gelatin have lower gelling point ($\leq 15^{o}$C) and melting point ($\leq 21^{o}$C) compared with warm water and demersal fish gelatin gelling point ($\leq 21^{o}$C) and melting point ($\leq 27^{o}$C). This may due to different hydroxyproline and proline (imino acids) content of fish from different habitats. Imino acids control the gelling ability, melting ability and thermoreversibility of gelatin, i.e the ability to melt after gelling and vice versa. It is found that fish from cold water and pelagic fishes are also lower in imino acids content compared to warm water and demersal fishes. Good grade gelatin (Bloom value in the range of 250-300 g) is needed for applications such as pharmaceutical capsules and gummy bears. This review is on the relation of habitat of fish with the functional properties, applications of fish gelatin in the industry and the potential of fish gelatin to overcome the current issue of non Halal gelatin.

Keywords:*Fish gelatin, Bloom value, Thermoreversibility, Imino acid*