

عنوان مقاله:

Research Article: Application of an optimum level of acidic extracted grass carp (*Ctenopharyngodon idellus*) gelatin as a fat replacer in low-fat milk cream development

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خلاصه مقاله:

The main objective of this study was to determine the optimum application level of acidic extracted grass carp (*Ctenopharyngodon idellus*) gelatin as a protein-based fat replacer in the development of low-fat milk cream. A cream mixture consisting of fish gelatin at different concentrations (0-8%), milk cream, and cow milk was used to find the best formula for developing a low-fat milk cream. The optimization of the formula was based on the physicochemical and sensory properties of the prototypes using a mixture design model. Results showed that the crude protein content of the prototypes was increased by increasing fish gelatin concentration. However, the fat content was significantly reduced from 30% in the control to 12.5% in the low-fat sample with 8% fish gelatin. The highest values of freeze-thaw stability and water holding capacity were seen in the low-fat samples with 4% and 8% fish gelatin. The microstructural characteristics revealed that fish gelatin could cause smaller particles of oil globules compared to the full-fat cream. The lightness value was decreased significantly in the prototypes by increasing fish gelatin concentration, while the highest yellowness index was observed in the prototype with 8% fish gelatin. This study revealed the successful application of fish gelatin in low-fat milk cream at the level of 8%. At this level, the sensory attributes and texture properties were improved. This study noted that it is possible to develop a low-fat milk cream enriched fish gelatin as a novel functional ingredient with high nutritional values and potential health benefits.

کلمات کلیدی:

Grass carp, Fish gelatin, Fat replacer, Low-fat milk cream, Acidic extraction

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