

## Effect of Farsi gum (*Amygdalus Scoparia Spach*) in Combination with Sodium Caseinate on Textural, Stability, Sensory Characteristics and Rheological Properties of Whipped Cream

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**Abstract :** Cream (whipped cream) is one of the dairy products that can be used in desserts, pastries, cakes, and ice creams. In this product, some parameters such as taste and flavor, quality stability, whipping ability, and stability of foam after whipping are very important. The objective of this study is applicable of Farsi gum and sodium caseinate in 3 biopolymer ratios (1:1, 1:2, and 2:1) and 0.15, 0.30, and 0.45 %wt. concentrations in whipped cream formulation. Sample without hydrocolloids was considered as a control. Before whipping, viscosity of all creams was increased continuously with increasing shear rate. In addition, the viscosity was increased with the increasing hydrocolloids addition (in constant shear rate). Microscopic observations showed that polydispersity of systems before whipping. Overrun of F, FC11, and FC21 samples were increased (with increasing total hydrocollid concentration 0.15 to 0.30 % wt.); then decreased this parameter with increasing to 0.45 % wt. concentration. However, mean comparison of FC12 samples overrun showed that this value was increased with increasing total hydrocolloids concentration. 0.45FC21 sample had significantly ( $P<0.05$ ) highest overrun ( $118.44\pm 9.11$ ). Syneresis of whipped cream samples are reduced with hydrocolloid addition. B sample had significantly ( $P<0.05$ ) highest serum separation ( $16.66\pm 0.80\%$ ), and 0.45FC12 had a low one ( $5.94\pm 0.19\%$ ) in compered with others syneresis. Mean comparison of hardness and adhesiveness of whipped cream revealed that Farsi gum addition alone and in combination with sodium caseinate increased the previous textural characteristics. Results exhibited that 0.4FG12 had significantly ( $P<0.05$ ) highest hardness ( $267.00\pm 18.38$  g). Mean comparison of droplet size of cream sample before whipping displaced that hydrocolloid addition had no significant effect ( $P>0.05$ ), and mean droplet size of the samples ranged between 1.93-2.16  $\mu\text{m}$ . Generally, the mean droplet size of whipped cream increased after whipping with increasing hydrocolloid concentration (0.15-0.45 % wt.). Color parameter analysis showed that Farsi gum addition alone and in combination with sodium caseinate had no significant effect ( $P>0.05$ ) on these parameters (Lightness, Redness, and Yellowness). Based on sensory evaluation results, appearance, color, flavor, and taste of whipped creams not influenced by hydrocolloids addition; but 0.45FC12 sample had higher value. Based on the above results, Farsi gum had suggested to potential application in a whipped cream formulation; however, further research need to founding of their functionality.

**Keywords :** whipped cream, farsi gum, sodium caseinate, overrun, droplet size, texture analysis, sensory evaluation

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