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## Optimizing a dark chocolate formulation based on inulin, isomalt and maltitol mixture in order to produce sugar free chocolate

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In recent years, the application of bulk sweeteners have been attracting more research interests to produce sugar free chocolate due to decreasing the amount of calorie intake. In this study, a low-calorie dark chocolate was developed by incorporation of inulin, isomalt and maltitol mixtures at various levels ranging from 0% to 38%. The optimum formulation of chocolate, as affected by bulk sweeteners, was selected according to the rheological behavior, mechanical properties and sensory evaluation. The rheological data showed that the Casson model was appropriate model for the behavior of low-calorie dark chocolate. The Casson viscosity coefficient was decreased by increasing maltitol content, while its value increased with reduction of inulin and isomalt. In contrast, higher value of Casson yield stress obtained by increasing the levels of inulin and isomalt, as well as increasing maltitol content. A snap test using the texture analyzer was conducted in order to determine the maximum force required to break the chocolate. The snap test indicated that highest hardness parameter achieved when the amount of maltitol and isomalt increased up, whereas inulin content decreased. Sensory results showed that panelists liked the chocolate texture containing the lowest amount of inulin. According to the results, the chocolate prepared with 23.236% inulin, 53.526% isomalt and 23.236% maltitol suggested good acceptance and excellent scope to be used as a low-calorie product.

### Biography

Maryam Kiumarsi has completed her Master's from Isfahan University of Technology, Iran. She has started PhD studies in Food Processing Department of Research Institute of Food science and Technology, Mashhad, Iran. She has teaching experience in food microbiology, traditional food products, food packaging and factory hygiene principles for bachelor students. She has done several projects during her PhD education such as "Study on Textural and Rheological Properties of Sugar Free Chocolate Dragee Based on fig (*Ficus carica*)" and "Rheological, Textural and Sensory Properties of Low Calorie Probiotic Chocolate". She is interested in chocolate and confectionery products and sensory evaluation of food with publishing several papers in these fields.

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