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Optimization of process parameters of osmotic dehydration of ginger

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Ginger is used in traditional Indian system as spice crops but it has medicinal properties, like *ayurvedic*, due to its therapeutic values. The ginger is used in medicines to treat common cold, gastric troubles, headache, constipation, enlarged liver, etc. The fruit, due to its spicy taste, has very limited use. For optimization of osmotic dehydration process of ginger in sugar solution by response surface methodology, the experiments were conducted according to Box and Behnken design. The independent process variables for osmotic dehydration process were osmotic solution concentrations (40-60°Brix sugar), osmotic solution temperature (40-50°C), solution to fruit ratio (1:4 v/w), and process time (30-90 minutes). The osmotic drying process was optimized for maximum water loss, overall acceptability and minimum solute gain. The optimum conditions were 60°Brix concentration, 50°C osmotic solution temperature, and 90 minutes process time for 3 mm thick slices. An analysis of variance (ANOVA) revealed that, among the process variable, concentration and temperature has the most significant effect on water loss, solute gain, and overall acceptability.

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Storage study of low fat soft dough biscuits

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Low fat soft dough biscuits were developed using carbohydrate based (maltodextrin, polydextrose and guar gum) and protein based (Simplesse) fat replacers. A central composite rotatable design was used to optimise the levels of sugar, composite fat, ammonium bicarbonate and water. The effect of all the variables on physical, textural and sensory properties of low fat biscuits at linear, interactive and quadratic levels was studied. Optimization was done on the basis of spread ratio, hardness, stress-strain ratio and overall acceptability. The optimized low fat biscuits made from maltodextrin and guar gum; polydextrose and guar gum; and Simplesse consisted of 7.99, 6.45 and 11.98 per cent fat, respectively as compared to 21.47 per cent fat in control biscuits. During stored for 3 months at 15-25°C, there was a significant ($p<0.05$) increase in moisture content, free fatty acid (FFA) content and peroxide value (PV) of control and optimized products. Also, a significant ($p<0.05$) decrease in hardness and scores of taste, flavour and overall acceptability was observed in all samples but the decrease was higher in control biscuits than in low fat biscuits. From the storage study, it was concluded that biscuits containing polydextrose and guar gum were the most stable among all types of biscuits due to their lowest PV and FFA content and they were liked more by the panelists.

Biography

Bhawna Chugh is pursuing PhD in Food Technology from GB Pant University of Agriculture and Technology, Pantnagar. She is getting ICAR-SRF fellowship during her degree programme. She has published research papers and articles. She has also qualified ARS-NET exam in food science and technology. She got first division throughout her academics.

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