
Dairy dessert processing: Effect of sugar substitution by date syrup and powder on its quality characteristics

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Abstract

Second-grade dates can be valorized by its uses in the production of nutritive foods with health benefits. Date syrup (DS), date powder (DP), and their different concentrations, using D-optimal mixture design, were used for the formulation of dairy desserts: syrup dairy dessert (SDD) and mixture dairy dessert (MDD). The optimized mixture proportions of the best dairy dessert formulation, containing date syrup (14%) and powder (2%) as a sugar substitute (0%), were determined to achieve the desired sensory for the effective formulation process. Significant differences in water, protein, fat, and sugar contents were found between SDD, MDD, and commercial dairy dessert (CDD) used as standard, respectively. SDD exhibited the highest total phenolic content (0.65 ± 0.04 mg GAE/g), DPPH inhibition ($4.00 \pm 0.82\%$), and reducing power ($2.75 \pm 0.10\%$) followed by MDD and CDD. The absence of germs indicated a high microbiological quality of dairy desserts. Rheological measurements revealed that all samples exhibited a weak gel structure and shear thinning behavior. Desserts supplemented with dates led to desserts with an homogeneous structure.