

عنوان مقاله:

Optimization of Spray Drying Conditions for Production of Ice Cream Mix Powder Flavored With Black Mulberry Juice

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خلاصه مقاله:

The aim of this work was to optimize the spray drying conditions for the production of ice cream mix powder. A lab-scale spray dryer was employed for the spray drying process, the mix of salep and k-carrageenan was used as stabilizer and black mulberry juice added to ice creams as a natural flavor. Response Surface Methodology (RSM) was performed to examine the influence of inlet air temperature (120°C , 140°C , and 160°C), feed flow rate (5, 10, and 15%) and black mulberry concentration (15, 30, and 45%) on drying yield and total anthocyanin content of powders, overrun and melting rate of ice creams prepared from the reconstituted powders. Scanning electron microscope was used for monitoring the structure of the powders. The following optimum process conditions were determined: inlet air temperature of 138°C , feed flow rate of 8% and juice concentration of 35%. These parameters led to the process yield, total anthocyanin content, overrun and melting rate of 76.14%, 54.11 mg L⁻¹, 74.50%, and 1.52 g min⁻¹, respectively.

کلمات کلیدی:

Natural flavor, Salep, SEM, response surface methodology

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