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ORIGINAL ARTICLE

Multiresponse optimization of the extrusion process for ready-to-eat snacks from pineapple byproducts and maize flour

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Abstract

This research aimed to optimize the processing conditions to obtain ready-to-eat extruded snacks with a high fiber content from mixtures of pineapple byproduct powder (PBP) and nixtamalized maize flour (PBP-NMF) or maize flour (PBP-MF). The effects of barrel temperature, feed moisture content, and PBP were evaluated. The increase in barrel temperature has a negative effect on the bulk density, the water absorption index, and the texture in both mixtures (PBP-MF and PBP-NMF) and increases the expansion index and the water solubility index in the mixture with MF. The increase in the feed moisture content increased the bulk density and water absorption index in both mixtures and the texture in the mixtures with MF. The increasing PBP decreases the expansion index and increases the water solubility index in both mixtures. The increase in PBP in the mixtures with MF decreases the water absorption index, texture, and bulk density. From the optimization, four products were obtained, two for the NMF mixture and two for the MF mixtures. The optimal formulations can be considered a good source of total fiber (12.46–12.78 g/100 g) and protein (8.27–8.85 g/100 g) with good acceptance by consumers.

Practical Application