

***Characterization Study and Shelf Life Estimation Of Rejected Mango Flour
Using The Critical Water Content Method***

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ABSTRACT

Rejected Arumanis Mangoes have the potential to be processed into flour to increase their value-added and extend their shelf life. This study aims to determine their physicochemical characteristics, functional properties, and estimated shelf life using the ASLT method with the critical moisture content approach. The parameters analyzed include color, moisture content, total titratable acidity, vitamin C, water absorption capacity (WAC), oil absorption capacity (OAC), swelling power, and solubility. Shelf life estimation was based on initial moisture content, critical moisture content, equilibrium moisture content, and water sorption isotherm curves using several models, namely the Oswin, Chen Clayton, Caurie, Handerson, and Hasley models. The result of 0,2656%, vitamin C of 140,80 mg/100 g, and on orange-yellow color with values of L* 65,46; a* 11,41; b* 41,84. The functional properties obtained are WAC 1.70 ml/g, OAC 1.32 ml/g, swelling power 2.55 g/g, and solubility 47,25%. The Oswin model was selected as the best water sorption isotherm model for estimating shelf life. Based on the ASLT method and the moisture content approach, the shelf life of mango flour stored at 24°C and 75% RH is 194.8 days.

Keywords: Critical water content, Functional properties, Physicochemical Characteristics, Rejected mango flour, Shelf life