

Physical, Chemical, and Functional Characteristics of Red Potato Flour Treated with Calcium Chloride Soaking and Blanching

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ABSTRACT

Red potato is one of the horticultural commodities with high economic value and significant potential to be developed as a raw material for the functional food industry in Indonesia. Processing red potatoes into flour is an effective approach to increasing their added value, extending shelf life, and expanding their utilization as a food ingredient. Pretreatments such as blanching and soaking in calcium chloride (CaCl₂) solution are known to influence flour characteristics by altering tissue structure, enzyme activity, and the chemical composition of the raw material, thereby producing flour with different properties depending on its intended application. This study aimed to analyze the physical, chemical, and functional characteristics of red potato flour produced using calcium chloride soaking and blanching methods. The results showed that the blanching treatment produced higher values of bulk density (0.91 g/mL), water holding capacity (WHC) (462.86%), moisture content (10.83%), and swelling power (530.18%). In contrast, the calcium chloride soaking treatment resulted in higher values of flour yield (16.10%), protein content (5.38%), fat content (0.22%), carbohydrate content (84.54%), resistant starch (16.06%), ash content (1.14%), amylose (19.44%), amylopectin (59.20%), oil holding capacity (OHC) (156.59%), and viscosity (111.15 cP). Based on the findings, the two pretreatment methods produced distinct characteristics in red potato flour. The results of this study are expected to provide scientific information for selecting appropriate processing methods and support the development of red potato flour as a raw material for various functional food products and other processed foods derived from local tuber crops

Keywords: *Blanching, Calcium Chloride, Red Potato Flour, Physical Characteristics, Chemical Characteristics, Functional Characteristics*