Study of Physical, Chemical, Functional Characteristics, and Glycemic Index of Sweet Corn and Waxy Corn Flour

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ABSTRACT

Corn is one of the essential food commodities in Indonesia that has genetic diversity, such as sweet corn (Zea mays saccharata) and waxy corn (Zea mays ceratina). This genetic difference, particularly in amylose and amylopectin content, affects the physical, chemical, functional properties, and glycemic index of the resulting flour. This study aims to analyze the physical characteristics (syneresis, swelling power, yield, density), chemical characteristics (moisture, ash, protein, fat, carbohydrate, amylose, amylopectin, and dietary fiber contents), functional properties (Water Holding Capacity/WHC, Oil Holding Capacity/OHC), and the glycemic index of sweet corn and waxy corn flour. The method used was quantitative descriptive, with an in vivo glycemic index analysis on 16 healthy volunteers who consumed tortilla products. The results showed that sweet corn flour had a slightly higher swelling power (287.28%) and yield (94.06%), but waxy corn flour was superior in gel stability (syneresis 5.43%) compared to sweet corn (21.64%). Chemically, sweet corn was superior in Total Dietary Fiber (4.06%) and amylose (17.48%) contents, while waxy corn was dominated by amylopectin (60.07%). The functional properties of WHC (182.00%) and OHC (152.53%) were higher in sweet corn flour. Both tortilla products were classified as having a moderate Glycemic Index, namely 58.6 (sweet corn) and 57.6 (waxy corn), which are safe and recommended for people with diabetes mellitus.

Keywords: Sweet corn flour, waxy corn flour, physical characteristics, functional properties, glycemic index, tortilla.