

# Development of A Novel UV-Photochemical Reactor for Producing Modified Cassava Starch as New Alternatives to Wheaten Breads

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## Abstract

*This study evaluated the effect of added lactic acid and UV irradiation on the psychochemical and rheological properties of modified cassava starches. Commercial cassava starch was modified by using 1%(w/w) lactic acid solution for 20 min and the drained starch was irradiated with UV. Combination of lactic acid addition and UV irradiation decreased the intrinsic viscosity of cassava starch. Amylopectin is considered to be more soluble than amylose when starch is subjected to the action of lactic acid. Washing lactic acidified starch with water resulting in higher pH and consequently lower specific volume of applied on food. Therefore, in order to have higher specific volume, the acidified cassava starch suspension was directly drained. Acidification and UV irradiation reduce properties of solubility and swelling power. This evidence possibly related to crystallization of amylose and amylopectin in the starch granule. To verify effect UV-irradiation on modified cassava starch, another experiment was established. Cassava starch was soaked in lactic acid solution as mentioned above prior to treat under a hot air oven, set at 40°C for 23 hours. The cassava starch treated by acidification and UV-irradiation tended have better psychochemical and rheological properties than treated in oven.*

**Keywords:** cassava starch; uv-photochemical reactor; lactic acid; psychochemical; rheological

