

Modification of Cassava Starch using Crude Ginger Oleoresin

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Abstract

The slurry method has been used to modify cassava starch by gingerol of crude ginger rhizome extract at room temperature. The effect of starch/water/gingerol in the reaction system on the modified starch swelling power, water solubility, and cross link densities was investigated. In addition, a scanning electron microscopy (SEM) analysis was also conducted to observe possible structural changes of the starch. The experimental results show that different composition of starch/water/gingerol in the reaction system affected the extent of modification. Modification under the conditions employed in this study produced starch with high swelling power, which influences texture, a determining factor in consumer acceptance of some foods, and significant improved solubility that depicts enhanced digestibility. The crosslink densities achieved in this modification process were high and reproducible indicating strong interaction between starch and gingerol molecules in the water as dispersant. However, there were no noticeable changes found from the micrograph of the SEM analysis in the external surface of the cassava starch. As a result the modified starch can be applied where such properties are desired.

Keywords: slurry method, cassava starch, gingerol, swelling power, cross-link