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Characterization of Edible Film from Uwi Starch (Dioscorea alata L.)

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Abstract : The research about modification uwi starch (Dioscorea alata L) by using propylene oxide has been done. Concentration of propylene oxide were 6%(v/w), 8%(v/w), and 10%(v/w). The amilograf parameters after modification were characteristic breakdown viscosity 43 BU and setback viscosity 975 BU. The modification starch have edible properties according to FDA (Food and Drug Administration) which have degree of modification < 7%, degree of substitution < 0,1 and propylene oxide concentration < 10%(v/w). The best propylene oxide in making of edible film was 8 %(v/w). The starch control can be made into edible film with thickness 0,136 mm, tensile strength 20,4605 MPa and elongation 22%. Modification starch of uwi can be made into edible film with thickness 0,146 mm, tensile strength 25, 3521 Mpa, elongation 30% and water vapor transmission 7, 2651 g/m2/24 hours. FTIR characterization of uwi starch showed the occurrence of hydroxypropylation. The peak spectrum at 2900 cm-1 showed bonding of C-H from methyl group, which is characteristic for modification starch with hydroxypropyl. Characterization with scanning electron microscopy showed that modification of uwi starch has turned the granule of starch to be fully swallon.

Keywords : uwi starch, edible film, propylen oxide, modification
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