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Physico-chemical and thermal properties of starch derived from sugar palm tree (Arenga pinnata) (Article)

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Abstract

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Petroleum based polymers are extremely stable and commonly used in various industries include food packaging, furniture and automotive. However, the waste that come from petroleum based polymer material has brought negative impact not only for human being, but also create the serious environmental problems. Hence, biopolymers that come from natural source such as starches are now being considered as an alternative to the existing petrochemical based polymers. This study was aimed to examine the potential of sugar palm starch extracted from sugar palm tree (Arenga pinnata) as a new biopolymer. The important properties of sugar palm starch studied were the chemical properties, thermal properties, particle size and morphological surface. The starches isolated from sugar palm tree contained comparable amounts of amylose (37.60 %) which were higher than tapioca, sago, potato, wheat and maize. The results showed significant differences in the chemical content as well as in the granule sizes of sugar palm starch. Thermal characteristic studies using thermogravimetry analysis and differential scanning calorimetry showed that sugar palm starch was thermally stable than other starches. Study on morphological surface indicated that sugar palm starch were rounded and oval-shaped.

Author keywords

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