

**THE PHYSICOCHEMICAL AND MECHANICAL PROPERTIES
AND COMPOSITE BIOPOLYMER FILM FROM NUTMEG
(MYRISTICA FRAGRANS) PECTINE JUICE**

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Nutmeg fruits are classified as underutilized fruits as most of its plant parts especially the pericarp that contains pectin usually become the by product of food processing industry. In this project, nutmeg jelly was prepared from the pectin juice as a base for making biopolymer film with the incorporation of soybean milk powder and plasticizers such as glycerol, sorbitol and polyethylene glycol. The effect of soybean milk powder and plasticizers concentration on the physicochemical and mechanical properties of the films were determined. Thickness of the films were ranged from 1.18 to 1.50 mm while, the water vapor permeability of the film given the condition of 75 % RH at 25°C during 48 h storage were from 13.35 to 26.14 gm-2h-1kPa-1mm. Films moisture content and its water solubility were from 19.74 to 59.31% and 77.86 to 100%, respectively. Tensile strength determined using a Texture Analyzer Shimadzu showed the hardness of film was from 0.03584 to 0.03680 N/mm². The tensile strength increases as soybean milk powder increased but showed decreases when sorbitol was added. The addition of soybean milk powder and sorbitol into the film-forming solution significantly affect the thickness, water vapor permeability, moisture content and water solubility but did not significantly affect the mechanical strength of the films. As the addition of soybean milk powder and sorbitol reduced water vapor permeability, moisture content and water solubility therefore, the composite biopolymer film from nutmeg pectin juice has potential to be used as edible packaging or coating materials for food or pharmaceutical products.

Keywords: Composite biopolymer film, myristica fragrans, pectin juice

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