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Performance of Lecithin Isolate from Vegetable Oil as an Emulsifier on the Beeswax Coating Characteristics

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Abstract : Beeswax is a naturally occurring wax that generally consists of fatty acid esters and various long-chain alcohol compounds. One of the main components in wax coating is an emulsifier that functions to form products. Vegetable oils have the potential to be the source of materials for production of lecithin. Rice bran oil contains 1.0 – 2.0% phosphatidate gum, which is used in crude lecithin production. This study aimed to isolate lecithin from crude rice bran oil, characterize the isolate, and determine the effects of lecithin concentrations as an emulsifier on the characteristics of beeswax coating. The variables consisted of the lecithin concentrations (%) of 0, 0.25, 0.5, 0,75, and 1 in the beeswax coating formulation. The procedures are extracting crude rice bran oil, isolating lecithin from the oil, characterizing the lecithin isolate, mixing rice bran and soy lecithin, and incorporating the lecithin mixture in beeswax coating formulation at different concentrations mentioned above. The rice bran and soy lecithin mixture, at the ratio of 1:6 and to be used as an emulsifier, was analyzed for Creamy Index (%) and HLB. The beeswax coating preparations, containing different concentrations of emulsifier, were analyzed for visual appearance, pH, density, and viscosity. The yield of crude rice bran oil 9.989%. The lecithin isolate 1.1% and contained phospholipid based on the FT-IR spectroscopy. The rice bran-soy lecithin mixture exhibited 19.4% Creamy Index and 8.29 HLB. The analyses of beeswax formulations showed increasing trends on all parameters tested as the result of increasing concentrations of emulsifier.
Keywords : beeswax, coating, emulsifier, rice bran lecithin.

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