

Tanawan Wanthong 2012: Encapsulation of Mango Seed Kernel Extract and Its Application. Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development. Thesis Advisor: Mrs. Thepkunya Harnsilawat, Ph.D. 93 pages.

Mango seed kernel (MSK), by-product obtained from mango industry, has been shown to be a good source of phenolic compounds that are beneficial to reduce the risk of various diseases. Moreover MSK acts as potent tyrosinase inhibitors to prevent overproduction of melanin in epidermal layers. The limitation of using MSK is low solubility for using it as product ingredient. Therefore, the objective of this research was to solve the solubility problem of the ingredient by preparing the encapsulated MSK. This research was conducted to investigate the effect of ingredients on qualities of water in oil in water emulsion containing MSK and the effect of drying processes on physicochemical properties of encapsulated powder. The influence of ingredients for encapsulation (gum arabic (GA) 0-20wt%, maltodextrin (MD) 0-30 wt% and tamarind kernel powder (TKP) 0-3wt%) on qualities of emulsion were studied. The results revealed that the optimum formulation was 10.00 wt% GA, 15.00 wt% MD and 2.75 wt% TKP. When compared the systems containing whether methyl gallate or MSK extract, the results showed that encapsulating MSK extract gave higher EE than that of methyl gallate. Second, the effect of drying method on physicochemical properties of encapsulated MSK powder was studied. The results showed that the drying methods had an effect on physicochemical properties of encapsulated powder. Water solubility index, water activity, lightness and redness of spray dried powder showed higher values than those of freeze dried powder, while moisture content, yellowness and total phenolic content of spray dried powder were lower than those of freeze dried powder. Third, the changes in physical properties of encapsulated MSK powder during storage at -20, 4 °C and room temperatures were monitored for 8 weeks. The MSK powder were packed in aluminium foil during storage. Water activity, moisture content and color of encapsulated MSK powder slightly changed while the water solubility index decreased during storage. Finally, the application of encapsulated MSK powder for lotion showed that the lotion containing encapsulated MSK powder had good stability and physicochemical properties. Result of acceptability test indicated that 95% of consumers accepted lotion containing encapsulated MSK powder product.

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Student's signature

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Thesis Advisor's signature