

Characterization of Nanoemulsion Incorporating Crude Cocoa Polyphenol

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Abstract : Cocoa bean is the raw material for products such as cocoa powder and chocolate. Cocoa bean contains polyphenol which has been shown in several clinical studies to confer beneficial health effects. However studies showed that cocoa polyphenol absorption in the human intestinal tracts are very low. Therefore nanoemulsion may be one way to increase the bioavailability of cocoa polyphenol. This study aim to characterize nanoemulsion incorporating crude cocoa polyphenol produced using high energy technique. Cocoa polyphenol was extracted from fresh freeze-dried cocoa beans from Malaysia. The particle distribution, particle size, and zeta potential were determined. The emulsion was also analysed using transmission electron microscope to visualize the particles. Solubilization study was conducted by titrating the nanoemulsion into distilled water or 1% surfactant solution. Result showed that the nanoemulsion contains particle which have narrow size distribution. The particles size average at 112nm with zeta potential of -45mV. The nanoemulsions behave differently in distilled water and surfactant solution.

Keywords : cocoa, nanoemulsion, cocoa polyphenol, solubilisation study

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