Encapsulation of vitamin E in edible Pandan leaf oil-in-water emulsion beverages

Aricia Leuchang, Thamonwan Angkuratipakorn, Jirada Singkhonrat*
Department of Chemistry, Faculty of Science and Technology, Thammasat University,
Klong Laung, Pathumthani 12120, Thailand
*Email: jirada@tu.ac.th

Abstract: This study investigated the effects of thermal processing on the stability of Pandan leaf oil beverage emulsions containing vitamin E during chilled storage. Pandan (Pandanus amaryllifolius) leaf is a source of natural flavoring widely used in South-east Asia. As the consumer requirement for use of natural flavors, extraction of components from natural sources has been sought. The physical stability of the poly(glycerol-succinate)oligoester (PG\textsubscript{1.5}SF\textsubscript{R0.05}) emulsions was monitored by optical microscopy. Vitamin E retention was considerably higher for all heated beverages under the specified storage conditions. The influence of on the size of the droplets produced by sonication was examined. Small droplets could not be formed using only vitamin E as the oil phase because of its very high viscosity, but they could be formed when Cellulose nanocrystals (CNCs) and poly(glycerol-succinate)oligoester (PG\textsubscript{1.5}SF\textsubscript{R0.05}) was introduced to homogenization. These results indicate that is effective at forming edible Vitamin E delivery systems that could be used in functional beverage applications.

Keywords: Emulsion beverage; Pandan leaf oil; Vitamin E; Cellulose nanocrystals; Poly(glycerol-succinate)oligoester