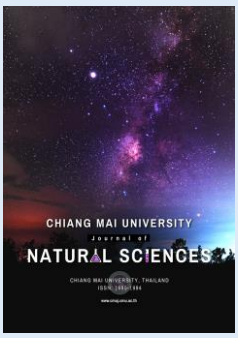

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Research article

Trans- Free Fat Spread Produced from Rice Bran Oil and Rice Bran Oil Shortening Blends

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Abstract The objective of this study was to produce *trans*-free fat spread from rice bran oil and rice bran oil shortening blends to replace partially hydrogenated fats which contain high levels of *trans* fatty acids. The W/O emulsion of rice bran oil spread was prepared from blending of rice bran oil and rice bran oil shortening with the mass ratio of 40: 60 using PGPR as an emulsifier. Physicochemical properties, fatty acid compositions, thermal behaviors, micronutrients, sensory attributes and oxidative stability of rice bran oil spread were investigated and compared with commercial spread products. Results showed that physicochemical properties of the rice bran oil spread were similar to the commercial spread (B2). *Trans* fatty acids contents of the rice bran oil spread (0.2% TFAs) were much lower than the commercial spread (F2) produced from partially hydrogenated fat (4.9% TFAs). Thermal behaviors and SFC profile indicated good physical properties and spreadability of the rice bran oil spread which were comparable to the commercial spreads. Micronutrients in the rice bran oil spread were greater than those of commercial spread products. The rice bran oil spread had the highest overall preference scores compared to the two commercial fat spreads. In addition, the rice bran oil spread exhibited high oxidative stability. This study demonstrated that rice bran oil and rice bran oil shortening blends can be used as an alternative source of partially and fully hydrogenated fats as well as tropical oils to produce *trans*-free fat spreads with desirable properties.

Keywords: DSC, Fatty acid composition, Micronutrients, Oxidative stability, Rice bran oil, Rice bran oil shortening, Rice bran oil spread, SFC, *Trans*-free

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