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## Development of rice bran oil incorporated table margarine and determination of its oxidative stability

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Rice bran is a by-product of the milling process, which is rich in protein, vitamins, enzymes, and containing 18-22% oil. Rice bran oil (RBO) is a rich source of bioactive compounds such as tocopherols, tocotrienols,  $\gamma$ -oryzanol, phytosterols, polyphenols and squalene which are responsible for antioxidant capacity. Rice bran oil is a versatile oil with a balanced fatty acid profile and the functional properties of  $\gamma$ -oryzanol. It has an ideal ratio (1:2.2:1.5) of saturated fatty acids, monounsaturated fatty acids and polyunsaturated fatty acids that is close to the recommendation of the world health organization. Even though margarine is an easy option to improve the overall quality of dietary fat, most kinds of margarine consumed in Sri Lanka are made from oils rich in saturated fatty acids. Therefore, rice bran oil is a good option to replace saturated fatty acids in oils. The objective of this work was to develop rice bran oil incorporated table margarine and to determine the oxidative stability of the novel margarine. Blends were developed by adding RBO amounts of 5%, 10%, 15% and 20% into the standard margarine blend. The use of synthetic antioxidants in lipid-rich foods has been discouraged due to safety issues. As a result, the use of natural antioxidants is on the rise. Further, assuming RBO as a natural antioxidant, another 4 types of blends were developed by adding ascorbyl palmitate (0.015%), TBHQ (tertiary butylhydroquinone) (0.015%), rosemary extract (0.2%) and RBO (20%), and Ascorbyl palmitate (0.0075%). Then, the oxidative stability of treatments was determined by the accelerated shelf-life method. TBHQ added to blend, showed the highest induction time ( $2.070 \pm 0.010$ ) hours, being the most oxidative stable sample. There was no significant difference ( $p > 0.05$ ) in stability among RBO blends of 5%, 10%, and 15%. Finally, the margarine was developed with 20% RBO and (0.0075%) ascorbyl palmitate, which showed similar oxidative stability as TBHQ. Further, the physical, chemical and sensory properties of novel margarine were determined. Even if our staple diet is rice, still rice bran oil remains uncharted.

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