

RESEARCH PAPER

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# Studies on effect of stabilization methods on physico-chemical properties of rice bran

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## SUMMARY :

Rice bran is a by-product of rice milling industry and constitutes around 8 per cent of the total weight of rough rice. It is primarily composed of aleurone, pericarp, subaleurone layer and germ. It is a good natural source of many vital nutrients but has some limitations in food application. It is highly susceptible to rancidity caused by the inherent enzyme lipase. In order to inactivate enzymatic deterioration, whole rice bran samples were subjected to stabilization methods. Stabilization of rice bran was carried out using hot air oven method and autoclave method. The rice bran was stabilized using hot air oven method at 130°C for 20 min and autoclaved with commercial retort at 120°C for 20 min. The autoclave method resulted in better nutrient preservation than hot air oven method and appears to be a practical and rapid tool for heat stabilization of rice bran. Autoclaved rice bran has comparatively higher levels of protein, fat and ash contents than hot air stabilized rice bran. Ash and carbohydrate contents showed a significant changes on application of stabilization methods. Mineral composition of autoclave method is better than hot air oven stabilization method of rice bran. Thermal processing decreased the free fatty acids of rice bran after 8 weeks compared with unstabilized rice bran. The rancidity in term of free fatty acid (FFA) was less increased 0.4 to 3.5 per cent in autoclave treated rice bran than untreated rice bran 1.2 to 35.5 per cent at the end of 2 months of storage period. The free fatty acid levels for both hot air oven and autoclaved rice bran were below the 4 per cent permissible level for 2 months for the product packed in polyethylene packs and stored in ambient room temperature. Results indicated that autoclave treatment might effectively improve the shelf-life of rice bran that contained a good amount of vital nutrients for health benefit and is useful in many food applications such as food supplement and edible oil extraction.

**KEY WORDS :** Rice bran, Nutritional composition, Stabilization methods, Free fatty acids, Enzyme inactivation

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