

# BIOCHEMICAL STUDIES ON RICE BRAN

BY



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## ABSTRACT

**Khaled Mohamed Amin Fauzy. Biochemical studies on Rice Bran. Unpublished Master of Science, University of Ain Shams, Faculty of Agriculture, Department of Biochemistry (1999).**

Dry heat stabilization, autoclaving, cold storage and parboiling were investigated as a method of stabilization of rice bran, extraction of oil immediately after milling showed to be preventing its deterioration, parboiled bran, cold stabilized, heat stabilized at 110°C for 30 min, autoclaving and heating for 20 min also found to be retarded oil deterioration during storage. Heating rice bran for 10 min at 110°C seems to be not effective for destroying lipase enzyme. Effect of stabilization and storage on fatty acid composition of oil were investigated by GLC technique. Palmitic, oleic and linoleic are the predominant fatty acids in rice bran oil. Crude proteins, crude fat, carbohydrates, fibers, ash and free amino acids were determined. These components were only affected by parboiling. Hypocholesterolemic activity was subjected on full fat rice bran and rice bran oil in two biological experiments on rats, rice bran and rice bran oil lowered serum total cholesterol and total lipids, LDL, triglycerides in normal and hyperlipemic rats. HDL were significantly increased, and GOT and GPT were lowered. Full fat rice bran were mixed with wheat flour at 20% level, rheological properties were determined, water absorption, arrival time and dough development were increased while dough stability and mixing tolerance index were reduced (Farinograph test), from data of extensograph test, elasticity and proportional number were increased, while extensibility and energy were decreased. Maximum viscosity was increased when visco-



amylgraph test carried out. Baking test were also made to determine the quality of panned bread which containing full fat stabilized rice bran. The volume was reduced and the crust and crump colour were increased.

**Key Words:**

Rice bran, Rice bran oil, stabilization, parboiling, storage fatty acid, chemical analysis, hypocholesterolemic activity cholesterol, HDL, LDL, transaminase, Rheological, Baking.

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