

## **Evaluation of rancidity development in rice bran produced from parboiled paddy**

Rice bran is an important food ingredient, which is used as a source of rice bran oil, dietary fiber, protein and nutraceuticals (foods or food supplements that have health promoting activities). A major constraint in utilizing rice bran in food applications is the rapid development of rancidity, producing Free Fatty Acids (FFA), peroxides, free radicals etc. due to strong lipases present in the bran itself and also due to microbial activities. Heat treatments during parboiling of paddy provide a useful mechanism to inactivate these enzymes. The objective of this study was to assess the stability of rice bran over rancidity produced by parboiled paddy milling during storage.

An accelerated storage study was conducted. Raw rice bran and parboiled rice bran at two initial moisture levels (3.8% and 11.4%) were stored in an incubator at 42 °C and 85% Relative Humidity for 12 weeks. Moisture content (by oven method) of bran and FFA (titration with alkali) of extracted oil was determined each week.

The rate of FFA development is lower in parboiled rice bran (initially 2.1% to 5.5% average at the end of 12th week) compared to raw rice bran (initially 2.2% to 49.0% average at the end of 12th week). Bran with high moisture (11.4% initial moisture level) produced FFA faster (initially 2.1% to 19.6% average at the end of 12th week) than bran with low moisture content (initially 2.1% to 5.5% average at the end of 12th week). The moisture content of stored bran is a detrimental factor for rancidity reactions. Rice bran produced during parboiled paddy milling, after drying was stable for a period of twelve weeks with suitable levels of FFA for human consumption.