

## INTRODUCTION

Rice bran is a byproduct of the milling process. It constitutes nearly 7-8 % of the total rice grain. Although rice bran has considerable potential as a contributor to oil supply, it is seldom considered in the list of edible oil raw material resources. The full fat rice bran should be suitably treated after milling to deactivate the naturally occurring lipase enzymes which if untreated would rapidly deteriorates the oil in bran.

Rice bran oil has great nutritive value for direct consumption as edible oil. However, there are some problems like high free fatty acids that create set back for its marketing as edible oil. During year 2010-11 Pakistan spent 3 billion US dollars for import of different vegetable oils and oil seeds, therefore, to save this foreign exchange, alternate sources have to be exploited.

The rice bran generally contains 15-20% oil. In this context, research work has been done to check the suitability of rice bran for commercial scale oil extraction in order to meet oil requirements of Pakistan.

## OBJECTIVES

- ✓ To explore alternative source of edible oil from rice bran.
- ✓ To develop technology for stabilization of rice bran and to increase its shelf life for two month.

- ✓ To co-ordinate rice milling industry and edible oil extraction industry.
- ✓ To reduce import bill of edible oil.
- ✓ To improve in input-use efficiency by converting low value by-product of rice industry to high value raw material of oil industry.
- ✓ Installation of oil extraction units will generate new opportunities for employment to the public at large scale.

## BENEFITS:

- Rice Bran Oil is produced from the bran of the rice kernel. It is known as the words healthiest edible oil. It is light, mild and sweet tasting providing a variety of healthful benefits.
- A source of vitamin E complex, antioxidants and other micronutrients to fight against aging.
- Rice Bran Oil has the best balance of saturated, monounsaturated and polyunsaturated fat.
- It's the oil of choice for improving serum cholesterol levels and preventing cardiovascular diseases, fights diseases and free radicals in body, enhances immune system and more.
- This natural oil is extremely versatile! It is used in foods, in different cooking styles such as baking, frying or stir frying.
- It is a Trans fat free, hypoallergenic oil, containing the benefits of vitamins,

antioxidants and nutrients.

- The viscosity of this oil is very light and the flavor delicate. Foods cooked with Rice Bran Oil absorb up to 20% less oil. Less oil absorbed also makes it more economical.
- Rice Bran Oil has a very high smoke (Burn) point, making it perfect for deep frying, pan or stir frying.
- It is a premium choice for the replacement of hydrogenated oil containing Trans fat now being used in deep fryers.
- Rice Bran Oil creates less polymers than the other oils meaning better flavor and easier clean-up.

## ECONOMIC BENEFITS

- ❖ Yield improvement (total value at current prices), Along with paddy yield, bran oil of worth 28 billion rupees will also be produced.
- ❖ Increase in export (total value at current prices)
- ❖ Rice bran oil has potential to increase exports up to 160 billion rupees annually.
- ❖ Decrease in import (total value at current prices) Import bill can be decreased potentially to 28 billion rupees annually.
- ❖ Improvement in input-use efficiency (total value at current prices) Rice bran is not utilized properly and is just used in animal feeds or burnt for making bricks. By extracting the oil from rice bran, a low value by-product of rice industry will be

converted to high value raw material or input for edible oil industry.

- ❖ Reduction in post-harvest losses (total value at current prices) not applied (rice bran is a by-product of rice milling process).

## SOCIAL BENEFITS

### **Employment Generation**

Installation of oil extraction units will generate new opportunities for employment to the public at large.

### **Health Improvement**

Since rice bran oil is reported to be the healthiest edible oil and it can be exported at a premium price in the international market. Rice bran oil has the ability to reduce bad cholesterol and increases good cholesterol, so it possesses good medicinal value particularly for Heart Patients.

### **Improvement in Food Quality**

As rice bran oil is containing vitamins, antioxidants and unique nutrients, the quality of food in which this oil is used is also improved. This oil is also very good for frying.

## STRATEGY

Rice Bran samples are being stabilized by:

### **Steaming**

Bran is heated at 100°C for 5 min. to 25 min.

### **Extrusion**

Bran is extruded at 100°C to 110°C for 2 min. to 15 min

### **Chemicals**

Hydrochloric acid, Phosphoric acid, Acetic acid, Sodium Metabisulphite and Sodium Bisulphate are applied with different concentrations

## OUT PUT

Rice Bran is successfully stabilized upto 60 days.

## ACHEIVEMENTS:

- Rice Bran Oil Extraction unit is Installed.
- Effect of aging of fresh Rice Bran on Quality of bran oil is determined.
- Stabilization technology of Rice Bran for oil extraction is developed.
- Refining method/ Technology for Rice Bran oil is developed.

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# EXPLORATION OF RICE BRAN OIL PRODUCTION



*For more information*

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