



## Choose the best rice bran oil for a healthy life!

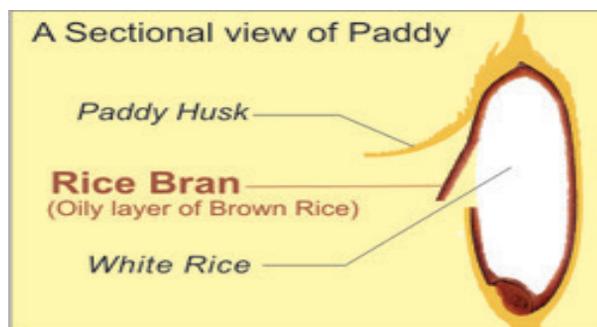
Wanting to live a healthy life is a decision to make. It's no more a choice. Hence, the below compilation that takes you through the many nuances of choosing the best rice bran oil holds good for everyone. Here, we are going to talk about rice bran oil, a cooking oil enriched with oryzanol (a natural antioxidant). Among the many health benefits, the oil is also helpful in reducing hypertension, which is a major risk factor for cardiovascular disease, the deadliest non-communicable disease. As they say a stitch in time saves nine, why not to know about the best rice bran oil that will satiate your hunger pangs and keep you fit as well. Here's a complete guide.

*A Consumer Voice Report*

In this month's comparative test study, our team has singled out seven popular brands of rice bran oils and tested the brands at an NABL accredited lab to rank the oils as per their performances. Rice bran oil is preferred primarily for its rich oryzanol, vitamin E, ideal fatty acid balance, antioxidant capacity, and cholesterol-

lowering abilities. Moreover, the oil is very light and the flavor is delicate. Foods cooked with rice bran oil absorb up to 15-20 percent less oil! Less oil absorbed results in reduced calories, better, lighter tasting food and enhanced flavor and palatability. Less oil absorbed also makes it more economical. In our comparative test of seven regular selling

## Comparative Product Testing



brands, each brand was evaluated based on parameters including oryzanol, saponification value, unsaponifiable matter, MUFA, PUFA, saturated fatty acid, moisture, refractive index, specific gravity, iodine value, peroxide value, flash point, argemone oil, etc. among others.

### How we test

The comparative testing was done by following specified national standards FSS regulations. However, a few parameters were taken from other relevant national standard IS: 3448-2014 rice bran oil specifications. And as usual, the testing was conducted at an NABL accredited and FSSAI approved laboratory following the standard test procedures. Each brand was purchased from the retail market, masked and coded before given to the lab for testing.

### Brands tested

So, here are the test results and rankings. The table below will show you which brand secured the highest and lowest positions.



### CV Recommendations

**Top Performer**  
**Gemini**

**Value for Money Brand**  
**Good Life**

Rank	Score	Brand	Quantity, gm	MRP, Rs	Best Before, Months	Manufacturer/ marketer
1	92	Gemini	1L (910 gm)	215	9	Cargill India Pvt Ltd
2	90	Good Life	1L (910 gm)	185	9	Reliance Retail Limited
2	90	Freedom	1L (910 gm)	185	9	Gemini Edible & Fats India Pvt. Ltd.
3	87	Patanjali	1L (910 gm)	175	9	Patanjali Ayurved Limited
4	86	Emami	1L (910 gm)	180	8	Emami Agrotech Limited
4	86	Fortune	1L (910 gm)	205	12	Adani Wilmar Ltd.
5	84	Ricela	1L (910 gm)	215	9	A.P. Organics Ltd.



### Key findings

- Based on overall score, brand Gemini performed on top followed by Good Life and Freedom.
- Good Life is the Value for Money brand.
- Good Life had the highest percentage of oryzanol followed by Gemini and Fortune.
- MUFA was found highest in Freedom and lowest in Gemini.
- PUFA was found highest in Gemini and lowest in Freedom.
- All brands have been found free from argemone/adulteration of other oils.
- Heavy metals and Aflatoxins have not been detected in any brand.
- All the brands have met FSSAI standard regulation.

### Why Rice Bran Oil?

Rice bran oil is a naturally occurring source of oryzanol, a nutrient is known to have anti-oxidant, anti-carcinogenic, anti-ulcer, anti-stress, lipotropic, hypothalamic, endocrinological effects and athletic benefits. It also treats nerve imbalance, disorders of menopause and benefits to the skin similar to that of vitamin E. The oil has the best balance of saturated, monounsaturated and polyunsaturated fats as recommended by the American Heart Association and the World Health Organization. It's the oil of choice for improving serum cholesterol levels and preventing cardiovascular diseases.

### Comparative performance (scores) of physically refined rice bran oils

Brand Parameters	Wt. %	Gemini	Good Life	Freedom	Patanjali	Emami	Fortune	Ricela
Moisture	5	4.1	3.5	5.0	4.4	5.0	3.5	3.5
Refractive index	5	4.50	4.2	4.35	4.20	4.55	4.2	4.20
Specific Gravity	5	3.60	3.02	3.96	2.56	3.04	2.98	2.50
Iodine value	7	6.12	5.52	6.16	5.55	4.81	4.92	5.61
Peroxide value	5	4.50	4.65	4.75	4.85	5.00	5.00	4.85
Saponification value	7	6.32	6.75	6.62	6.76	5.10	5.40	5.94
Unsaponifiable matter	7	6.44	7.00	6.16	5.32	5.60	5.04	4.76
Flash Point	3	3.00	2.70	2.76	2.82	2.70	2.82	2.88
Acid value	4	4.00	3.72	3.44	3.72	3.72	3.72	3.72
Argemone oil	2	2	2	2	2	2	2	2
Oryzanol	12	11.28	12.00	9.36	10.32	9.84	10.80	9.12
MUFA	5	4.10	4.18	4.99	4.12	4.17	4.12	4.13
PUFA	5	4.95	4.32	3.11	4.25	4.26	4.60	4.40
Saturated Fatty Acid	4	2.83	2.53	3.53	2.32	2.45	2.60	2.48
Trans Fatty Acid	2	2	2	2	2	2	2	2
Heavy Metal (Pb,As,Cd,Hg)	8	8	8	8	8	8	8	8
Aflatoxin total	4	4	4	4	4	4	4	4
Organoleptic tests	3	3	3	3	3	3	3	3

### TEST PARAMETERS

#### Oryzanol

Oryzanol is a natural antioxidant and is known to reduce the absorption and deposition of LDL and VLDL (bad) serum cholesterol. Oryzanol may help in reducing hypertension. It may also improve bone-mineral density and liver function and gives relief from gastrointestinal distress. It shall not be less than one percent.

Oryzanol has been found well above the minimum requirement in all tested brands. Good Life had the highest percentage of oryzanol followed by Gemini and Fortune.

#### Unsaponifiable matter

Unsaponifiable matter includes substances those are frequently found dissolved in fatty acids and drying oils. Unsaponifiable matter should not be more than 3.5 per cent for chemically refined oil and 4.5 per cent for physically refined oil. All the brands have been found within the specified limit. Good Life scored highest in this parameter followed by Gemini and Freedom.

#### Saponification value

The saponification value helps to detect the presence of other oils/fats. Saponification value of rice bran oil should be between 180 and 195. All



the brands have been found within the specified limit. Patanjali scored highest in this parameter followed by Good Life and Freedom.

### **Iodine Value**

The iodine value is a measure of unsaturated fats. It is a quality parameter for edible oil. Iodine value of rice bran oil shall be between 90-105. All the brands have been found within the specified limit. Freedom scored highest in this parameter followed by Gemini and Ricela.

### **MUFA (Monounsaturated fatty acids)**

MUFAs are a healthy type of fat. MUFA and PUFA as per the dietary recommendation helps in biochemical processes associated with nerves, brains, heart, digestion, and cell maintenance. Sunflower oil contains as much as 85 per cent MUFA. MUFAs lower the level of bad cholesterol (LDL) in the blood and raise the good cholesterol (HDL). MUFA was highest in Freedom and lowest in Gemini.

### **PUFA (Polyunsaturated fatty acids)**

Polyunsaturated fats can help reduce bad

cholesterol levels in your blood which can lower your risk of heart disease and stroke. Sources of PUFA include walnuts, sunflower seeds, sesame seeds, peanut butter and peanuts, flaxseed, poppy seed and oil of avocado, olive and safflower. PUFA has been found highest in Gemini and lowest in Freedom.

### **Peroxide value**

Detection of peroxide gives the initial evidence of rancidity in unsaturated fats and oils. Concentration of peroxide in an oil or fat is useful for assessing the extent to which spoilage has advanced. As per the FSS Regulation it shall be up to 10 Meg/kg. All the brands have been found within the specified limit.

### **Specific Gravity at 30°C/30°C**

Specific gravity is the ratio of the density of a material to the density of water. Specific gravity of edible oils should be less than 1.00 as they are immiscible liquids, which means they are insoluble in water. As per the Indian Standard, specific gravity of rice bran oil shall be in the range of 0.910–0.920.

### Moisture and volatile matter

Moisture is the amount of water present in edible oils. The amount of water should be lower than 0.10 per cent by weight which is standard permissible limit. All the brands have been found within the specified limit. Freedom and Emami scored highest in this parameter.

### Refractive index at 40°C

Refractive index of oil is used to detect rancidity in edible oil. It shall be between 1.4600-1.4700 for rice bran oils. All the brands have been found within the specified limit. Emami and Gemini scored highest in this parameter.

### Flash Point, pensky-martens (closed)

At the flash point, the vapour may cease to burn when the source of ignition is removed. It should not be less than 250 degrees celsius in case of rice bran oil. The higher the flash point of rice bran oil, the lower is the risk of ignition in the oil. Flash point of all the brands was above 250 degree C thus meeting the requirement of standard. Gemini scored highest in this parameter.

### Acid value

It is a relative measure of rancidity as free fatty acids are normally formed during decomposition of oil. It shall be not more than 0.5. All the brands have been found within the specified limit. Gemini scored highest in this parameter.

### Test for argemone oil

The oil shall be free from argemone oil. Consumption of this oil can lead to health hazards. Argemone oil was not detected in any brand.

### Heavy metals

Edible oils are generally low in trace element concentrations, however, metals such as arsenic (As), lead (Pb), cadmium (Cd) and mercury total can be found and are known for their toxicities which affect the health of consumers. All the brands passed these tests.

### Aflatoxin

The total aflatoxin shall be maximum 15 µg/kg. The crops can be contaminated by aflatoxins mainly due to the insufficiency of cultivation or storage techniques. The possible presence of aflatoxins in edible oil is inevitable which can cause some health problems for consumers. All the brands have been found within the specified limit.

### Fatty acid profile

The proportion of different types of fatty acids varies from one type of oil to another. An average person should limit the saturated-fat intake. Eating a lot of saturated fat increases the level of bad cholesterol (low density lipoproteins, or LDL) in the blood. And it is generally acknowledged that high levels of LDL place one at greater risk of heart disease. Saturated and trans fats are unhealthy 'bad' fats that can increase one's cholesterol, harden the arteries and eventually increase one's risk for heart disease. Approximately 20 per cent to 35 per cent of one's total calories should come from 'good' fats, like PUFAs and MUFAs.

### Saturated Fat

Eating foods that contain saturated fats raises the level of cholesterol in your blood. Saturated fats raise HDL cholesterol and change LDL from small, dense (bad) to large LDL, which is mostly benign. Saturated fat has been found highest in Patanjali and lowest in Freedom.

### Trans Fat

Rice bran oil is known for trans fat free oil. Trans fat was not detected in any brand.

### Packaging

Rice bran oil shall be packed in suitable well closed tin or plastic containers of food grade. The packing material should not affect the properties of the oil and at the same time maintains the shelf life of the product. All the brands of rice bran oils except Patanjali were packed in poly pack of 1 litre capacity. Patanjali had plastic bottle packing.

**Marking/labelling**

The containers shall be marked with the following information:

- a) Name, trade name, type and grade of the oil
- b) Name and business particulars of the manufacturer
- c) Net quantity of the contents in the container
- d) Batch number
- e) Month and year of packing/manufacture
- f) Best before
- g) Free from argemone oil
- h) Nutritional information
- i) MRP
- j) Customer care details

All the brands were marked with above information.

**Net weight**

Net weight should be as declared on packaging.

However as per legal metrology (Packaged commodity) rule, tolerance allowed is 1.5 per cent. All the brands have been found above or within tolerance of 1000 ml.

**Organoleptic tests**

All brands have golden yellow colour, acceptable taste and flavour.

**Conclusion**

The seven tested rice bran oil brands are safe in terms of toxic metal and aflatoxin. They have been found free from argemone oil and adulteration of other oils. Oryzanol was found well above the specified limit which is a natural antioxidant and is known to reduce the absorption and deposition of low-density lipoprotein (LDL). In a nutshell, rice bran oil is considered to be heart-friendly oil that might help in lowering cholesterol because it contains the right amount of oryzanol. All the brands passed the national standard requirement. Overall, brand Gemini performed on top followed by Good Life and Freedom.

**Better to Know**

**a. Shelf life**

All the tested brands had a shelf life of 8-12 months. Consumers buying above 5 litre capacities must ensure that the product shelf life is adequate for the consumption period.

**b. Good and bad fats in edible oils**

Monounsaturated	Polyunsaturated	Saturated	Trans
Good fat	Good fat	Bad fat	Bad Fat
Reduces bad cholesterol (LDL) levels and increases good cholesterol (HDL) levels	Reduces bad cholesterol (LDL) levels	Increases overall cholesterol levels, especially bad cholesterol	Increases the bad cholesterol (LDL) level and decreases good cholesterol (HDL) levels
Found in nuts and seeds, avocados, olive oil, and canola oil	Found in fatty fish such as salmon, mackerel, trout and sardines, and also in corn, safflower, sunflower and soybean oils	Found in animal-based foods such as meat, poultry and eggs, and also in butter, cream and other dairy products Also found in plant-based products such as coconut, coconut oil, palm oil, and palm kernel oil, and cocoa butter	Found in hydrogenated oil products such as vanaspati, margarine and vegetable shortenings used in packaged snack foods such as cookies, crackers, and chips, and fried foods