



# Groundnut Oils

## Which among these 10 brands should you choose?

Groundnut oil is derived from, well, groundnuts and is an important source of energy in our diet, meeting specific nutritional requirements. It works well with a wide variety of foods, which is a good thing because it contains heart-friendly MUFA (monounsaturated fatty acids) – the thing that lowers the level of bad cholesterol in our body without lowering the levels of good cholesterol. Throw in some omega-6 fatty acids and you have quite the ideal cooking oil. Groundnut oil is also low in saturated fats and high in unsaturated fats. Its high smoking point means the oil holds on to its nutritional content at higher temperatures. One gets the picture. The question is: how do the various brands fare against one another on the parameters that matter? Health claims made by brands and communicated via multiple media often leave the consumer confused about the best/better buy—and those who are not confused will pick any that is available in the market. So, are all brands made equal then? In other words, are they all as good as another and do they meet the basic requirements? Do you know that moisture in your groundnut oil must not cross a specified limit? Or that the iodine value is a measure of the unsaturated fats in the oil? How many of us know that the oil must not have any traces of argemone oil or mineral oil? Or that the lower the acid value, the better the quality? The following report will tell us more than a couple of things about how to choose our groundnut oil.

*A Consumer Voice Report*

**A**s per our standard procedure, we picked up samples of 10 popular brands of groundnut oil and subjected these to testing on parameters important to judge the quality of the product. The key parameters included moisture and insoluble properties, presence of other oils/fats, rancidity, antioxidants, adulteration with argemone oil and mineral oil, iodine value, acid value and flash point.

Five brands claimed to be filtered oil/extra virgin – it may be noted that the national standard has not specified a ‘filtered oil’ category. Rest were all refined oils.

The tests were conducted at an NABL-accredited laboratory and as per requirements specified in Indian Standard IS: 544:2014 and Food Safety and Standards (FSS) Regulations, 2011.

Going by the test results, all samples conform to quality requirements and can be considered to be safe for human consumption. While there were some variations, these were well within the specified limits. Use of re-heated oils should be avoided.



### Types of Groundnut Oil

Groundnut oil is available in the market in refined and filtered form. Generally, oils are refined through various processes via expression and solvent extraction, etc. While Food Safety and Standards Regulation, 2011, permits the addition of antioxidants in groundnut oil, these shall be within the prescribed limit.

**Refined oil:** This type of oil has been purified with chemicals to remove any suspended particles, toxic substances, flavour components, colour and odour, thereby leaving behind clear and pure oil.

**Filtered oil:** Obtained by the traditional cold-pressing method, this is filtered once or twice to remove suspended particles. They are simply filtered and bottled with no further processing. Unrefined or filtered oils retain the savoury flavour of the groundnuts from which they are derived.

## Comparative Test

### BRANDS TESTED (one-litre packs)

Rank	Total Score out of 100 (rounded off)	Brand	MRP	Type	Type of packaging	Best before	Manufactured/Marketed by
1	95	Dhara	175	Filtered	Tetra Pak	8 months	Mother Dairy Fruits & Vegetable Pvt. Ltd
2	91	Patanjali	145	Extra virgin	Plastic bottle	9 months	Patanjali Ayurved Ltd
2	91	Kanodia	190	Refined	Plastic bottle	9 months	Delhi Kanodia Oil Marketing
2	91	Dalda	185	Refined	Plastic bottle	9 months	Bunge India Pvt. Ltd
3	90	Guinea	169	Filtered	Pouch	6 months	Raj Oil Mills Ltd
3	90	Gulab	180	Filtered	Pouch	9 months	Gulab Oil & Food Industries
4	87	Gemini	170	Filtered	Pouch	9 months	Cargill India Pvt. Ltd
5	86	Postman	200	Refined	Plastic bottle	9 months	Mittal Oil Mills Pvt. Ltd
5	86	Fortune	160	Refined	Pouch	9 months	Adani Wilmar Ltd
6	85	RRO Primio	210	Refined	Plastic bottle	12 months	RR Oomerbhoy Pvt. Ltd

Score Rating: >90: very good\*\*\*\*\*, 71-90: good\*\*\*\*, 51-70: average\*\*\*, 31-50: poor\*\*, up to 30: very poor\*

#### CV RECOMMENDATION | TOP PERFORMER

**Dhara**



#### VALUE FOR MONEY

**Patanjali**

#### Key Findings

- Based on the overall test findings, Dhara is the top performer and is followed by Patanjali and Kanodia.
- The value-for-money brand is Patanjali.
- All the tested brands were free of adulteration.
- All brands were free of argemone oil and mineral oil.
- Saponification value of RRO Primio was lower (186.3) than the value (188-196) specified by the national standard. All other FSS-specified requirements were met by all the brands.

### Shelf Life

The declared shelf life of the tested brands varied from six to 12 months. Where the shelf life is six months, there is all the more need for consumers to be aware, particularly if they are buying the large pack of five litres or higher capacity. They must ensure that the oil remains stable within the consumption period.

### TEST RESULTS FOR PHYSICOCHEMICAL PARAMETERS

**Moisture and Insoluble Impurities | Refractive Index | Saponification Value | Iodine Value | Unsaponifiable Matter | Acid Value | TBHQ | Flash Point | Physical Observations | Hexane | Presence of Argemone Oil | Presence of Mineral Oil**

#### ◆ Moisture and Insoluble Impurities

Moisture and insoluble impurities may be present in edible oils but these should be as low as possible – Indian Standard and AGMARK have specified the permissible limit at 0.1 per cent for refined oils (expressed and solvent refined).

- *All brands were within the permissible limit.*
- *Dhara scored highest on this parameter.*

#### ◆ Refractive Index (at 40 degrees Celsius)

Refractive index of oil can be used to detect rancidity. It shall be in the range of 1.4620–1.4640.

- *All brands were within the specified limit. They were clear and without any haziness.*
- *Dhara scored highest on this parameter.*

#### ◆ Saponification Value

The saponification value helps to detect the presence of other oils/fats. Saponification value of groundnut oil shall be between 188 and 196.

- *All brands except RRO Primio were within the specified limit.*
- *Dhara scored highest on this parameter as well.*

#### ◆ Iodine Value

The iodine value is a measure of the unsaturated fats. It is expressed in terms of the number of



## Comparative Test

centigrams of iodine absorbed per gram of sample (% iodine absorbed). Iodine value of groundnut oil shall be in the range of 85–99.

- Iodine value of all brands fell within the specified limit.
- Dalda scored highest on this parameter.

### ◆ Unsaponifiable Matter

Unsaponifiable matter shall not be more than 1.0 per cent by weight of groundnut oil.

- All brands were within the specified limit.

### ◆ Acid Value

The acid value is the number of milligrams of potassium hydroxide necessary to neutralise the free acids in one gram of sample. Acid value shall not be more than 0.5 for refined oils. For filtered-type oils, the requirement is 6.0.

- All brands were within the specified limit.

### ◆ TBHQ (Antioxidant)

Antioxidants are the permitted food additives which when added to food products prevent their

oxidative deterioration for better nutritional stability and quality. FSS Regulations recommend that antioxidants should not exceed 0.02 per cent, or 200 ppm, in concentration. We tested the 10 groundnut oil brands for the antioxidant TBHQ.

- TBHQ was not detected in Dhara, Gemini, Guinea and Gulab; in the rest of the brands it was within the maximum recommended limit of 200 ppm.

### ◆ Flash Point

The flash point of a volatile material is the lowest temperature at which it can vaporise to form an ignitable mixture in air. 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 C as per Indian Standard. Higher the flash point of groundnut oil, lower is the risk of ignition in the oil.

- Flash point of all brands was found to be well above the specified limit.

### ◆ Hexane

In refined oils, hexane is used to extract the oil from seeds. It shall not be more than 5 ppm as per Indian Standard. For filtered oils, no requirement

## PHYSICOCHEMICAL

Parameter ↓	Weightage (%)	Dhara	Patanjali	Kanodia	
Moisture and insoluble impurities	10	10	9.5	9.5	
Refractive index	10	9.7	9.2	9.6	
Saponification value	10	9.6	9.12	8.0	
Iodine value	10	8.85	9.65	9.80	
Unsaponifiable matter	10	8.4	8.4	7.6	
Acid value	10	8.5	9.0	8.0	
TBHQ	10	10	7.27	9.65	
Flash point	8	7.8	7.8	7.64	
Physical observations	4	4	4	4	
Hexane	4	4	4	4	
Presence of argemone oil	3	3	3	3	
Presence of mineral oil	2	2	2	2	

has been specified because hexane is not required to extract the oil from seeds.

- Hexane was not detected in any of the brands, up to a detection limit of 5 mg/kg.

### Required to Be Absent: Argemone Oil and Mineral Oil

- All brands were found to be free of both argemone oil and mineral oil.

### Physical Observations/Tests

Physical observations on the 10 samples were made by laboratory scientists. The oil has to be clear and free of rancidity, adulterants, sediments, suspended and other foreign matter, separated water and added colouring and flavouring substances.

All brands scored equally well on this parameter.



## SCORES

	Dalda	Guinea	Gulab	Gemini	Postman	Fortune	RRO Primio
	8.5	9.5	9.0	6.0	7.5	9.5	9.0
	9.6	9.6	8.8	9.6	8.4	7.4	9.2
	8.8	6.88	7.04	7.28	7.44	8.8	3.0
	10	8.95	8.85	9.8	9.0	8.1	9.10
	8.4	7.6	8.4	7.6	7.6	8.4	7.6
	10	9.5	10	9.0	10	10	10
	6.7	10	10	10	7.32	5.13	8.47
	7.4	7.72	7.64	7.56	7.48	7.88	7.4
	4	4	4	4	4	4	4
	4	4	4	4	4	4	4
	3	3	3	3	3	3	3
	2	2	2	2	2	2	2

## Comparative Test

### FOR GENERAL QUALITIES

#### ◆ Marking/Labelling

The following details shall be marked on each pack:

- Name of manufacturer/marketer/importer
  - Batch number, month and year of manufacture
  - Net quantity
  - The statement that the product is 'free from argemone oil'
  - Nutritional information
  - The words 'best before' (month and year)
  - Maximum retail price (MRP)
- All brands have given the necessary information on their packs.
  - All the brands have mentioned nutritional values of the groundnut oil on their packaging.

#### ◆ Packing

The groundnut oil should be packed in food-grade material that does not affect the properties of the oil and at the same time maintains the shelf life of the product. As far as possible, the product shall be either in such packages that can be recycled or packed in reusable and/or biodegradable materials.

- Most of the brands were in polypack or plastic bottle of one-litre capacity. Dhara was in Tetra Pak.

### Net Weight

All brands were found to exceed the claimed quantity.



### How To Mix and Match Your Oils

One of the most important things to keep in mind is that oil behaves differently when heated – it changes texture, colour, taste and nutritional properties. When the oil reaches its smoking point, a lot of the nutrients are destroyed and it can sometimes form harmful compounds.

The only way to ensure that you consume healthy oil is by switching between two-three of them – for instance, by using groundnut oil one month and then using sunflower oil/mustard oil in another. Any single oil alone is not preferred.

Blending oils is another option, whereby you take equal proportions of different oils in one container and then use it. This way you do not get prolonged exposure to the side effects of one type of oil and also get the benefits of different oils.

You could also have two or more different kinds of oils in your kitchen which you could use for different purposes. For example, you could use olive oil for salads, groundnut/rice bran oil for frying, and mustard/soybean/sunflower oil for other cooking purposes. This will let you avail of the health benefits offered by each oil brand.

Dear readers: We are open to hearing your suggestions on products and services that you believe should be reviewed/ tested by Team Consumer Voice. You may write to [editor@consumer-voice.org](mailto:editor@consumer-voice.org).