



**WHICH
COOKING OIL
IS BEST IN
SOUTH INDIA**



**SHOCKING!!!
LACK OF BRAND CONSCIOUSNESS IN
URBAN EDUCATED WOMEN WHEN IT
COMES TO CHOICE OF COOKING OILS !**



(A centre for Consumer Education, Research, Teaching, Training & Testing)



Yummy pakodas, mouth-watering jilebis soaked in sugar syrup, or crispy chips and fries...all these sound just so delicious and tempting! Yet one cannot think of eating them without feeling guilty! This is because we have been conditioned into believing that consumption of these fat rich foods will trigger various health problems by an onslaught of advertisements.

Is consumption of fat so bad? What are these fats that we have been conditioned to dread?

Twenty urban educated women were asked questions on the type of oil as well as the brand they used for cooking.

The survey revealed that most of them chose that cooking oil based on the recommendations seen, heard or read by them — may be a doctor, nutritionist, the newspaper, visual media and magazines or the manufacturers themselves. manufacturers claimed that their oil to be cholesterol free , heart healthy, rich in MUFA and PUFA and so on. It was also a little startling and disturbing to note that these women selected the brand based on the price or freebies given along with the oil purchased. Not for true quality.

Food Safety & Standard (FS & S) Act 2006 & Regulation 2011.

Cooking oils and fats are one of the major nutrients in the day to day diet of consumers. The unique flavor, taste, smell and nutrition contribution in every cooking oil depends upon the individual quantity of different compounds (fatty acids) and other nutrients present in the

oil. Oil also plays an important role for providing oil soluble vitamins A, D, E and K, which gets absorbed from your food into your body.

The label on the cooking oil says, "free from Argemone Oil or Trans fat."

What is Argemone oil? What is Trans fat? Does it mean that this oil carries an additional health benefit in comparison to the brand that does not carry a similar label?

Argemone oil is non edible oil which is harmful to health and can also lead to death upon consumption. The labels of Edible Vegetable Oil packets and containers should carry the mandatory declaration, "FREE FROM ARGEMONE OIL" as per the PFA Rules 1955 & FS & S Regulation 2011. This was as a result of several deaths that took place in New Delhi and West Bengal as a result of consumption of vegetable oil adulterated with Argemone Oil.

Some oils are declared rich in PUFA and MUFA? Sounds like my neighbour's pets!! What are they?

The rest of the article answers all your doubts and guides you in choosing the right type of oil as well as the right brand. Sources of Fat & oils and their types:

Our Body needs fat to function properly. Fats and oils are made of compounds which contains long chain of carbon and hydrogen atoms ; the more hydrogen atoms attached, the more saturated the fat.



DEFINITION OF EDIBLE VEGETABLE OILS

“The edible vegetable cooking oils shall be clear and free from rancidity, adulterants, sediments, suspended and other foreign matter, separated water, and added coloring or flavoring substances and shall have acceptable, taste and odor. It may contain permitted antioxidants in specified quantities.”

This is provided from three sources:

Invisible fat — From food that we eat, like pulses, grains etc.

Visible fat — Oils and fat we used to cook the food or add to the food.

Endogenous fat — produced by our body.

The major kinds of fatty acids in oils are Saturated, Monounsaturated and Polyunsaturated Fatty Acids (MUFA and PUFA).

Saturated fatty Acids (SFA) are usually solid at room temperature. A carbon atom in these oils is fully saturated with hydrogen atoms. A carbon can attach itself to a maximum of four hydrogen atoms.

Our body manufactures enough of saturated fat. Also quite often unnecessarily, we consume too much of animal foods and fat rich dairy products (exceptions: palm oil, coconut oil).

Saturated fats have been associated with heart disease but some amount of saturated fat is necessary in one's diet to help the body's cells to remain healthy and resistant to disease.

Unsaturated fats mean that some of the

carbon in these oils is not completely filled with hydrogen. Unsaturated fats are two types.

They are **Monounsaturated** and **Polyunsaturated** fatty acids.

Monounsaturated fatty acids (MUFA)

Monounsaturated fatty acids (MUFA) are liquid at room temperature but start to solidify on refrigeration. Some of the Carbon in these oils lack hydrogen atoms.

It is found in animal and vegetable products. Monounsaturated fats are considered healthier than polyunsaturated fats because of their ability to lower "bad" cholesterol level in blood and maintain or raise levels of "good" cholesterol

Sesame seed, Groundnut oils are also good sources of MUFA.

What is Cholesterol?

Cholesterol is a yellow waxy sterol found in meat, egg yolks, and dairy products. In addition to obtaining cholesterol from these dietary sources, our body manufactures cholesterol in the liver. Despite its bad image, cholesterol is needed by the body to maintain and repair cells. Low cholesterol levels lead to

depression, lung disease, and sometimes even cancer.

There are two types of cholesterol:

Low-density lipoproteins (LDLs) or the Bad Cholesterols circulate in the blood and act as the primary carriers of cholesterol to the cells of the body. An elevated level of LDLs, contributes to atherosclerosis (clogging of blood vessels) A diet high in saturated fats can increase levels of LDLs in the blood.

The other type of Cholesterol called the High-density lipoproteins (HDLs) or the "Good" Cholesterol readily absorbs cholesterol and related compounds in the blood and transports them to the liver for elimination.

Triglycerides are the form in which the body stores fat in the cells.

Polyunsaturated fatty acids (PUFA)

Oils high in polyunsaturated fats include sunflower and soybean oil; some of the carbon in these oils has one or no hydrogen atoms.

It protects the heart, lowers blood glucose and triglycerides in type II diabetes. It may also offer protection against certain cancers, like breast cancer and colon cancer.

Hydrogenated Fats and Trans Fatty Acids or Trans Fats (TFA)

This term refers to a transformed type of fat in which natural oils are converted into a semi-solid fat by adding a hydrogen atom to an unsaturated fat chain. This

process is widely used to prolong the shelf life of commercial baked foods, packaged foods, most salad oils and dressings, margarine and cooking oils. During hydrogenation, a portion of the fat attains a different configuration called Trans Fatty Acids, which are known to interfere with the normal healthy functioning of the body.

In order to stay slim, people reject butter and cream in favour of margarine and other hydrogenated fats (containing trans fatty acids), which create havoc in a person's bio-chemistry, negatively affecting every system of the body.

Trans Fatty Acid (TFA) is commonly present in Vanaspati and is the most harmful of the dietary fats.

Hydrogenated fats are commonly used in most restaurants, fast-food chains, commercial baked foods and Indian sweets and savouries. The food industry uses hydrogenated fats as they are cheaper & they are known to impart a longer shelf life to the food products.

Oil that is best for cooking:

"Oils high in monounsaturated are best for cooking (frying). For example, groundnut, mustard, canola, rapeseed, olive oil, as they remain stable at higher temperatures."

Unrefined oils tend to have a better flavour and are excellent for use in sautéing and for dressings.

What should a good brand of oil contain?
A good brand of oil should be free from

adulterants which may be non edible oils such as Argemone oil, Mineral oil or Castor oil. Cheaper edible oils like cotton seed oil, Palmolein oil, Rice bran oil etc are also used as adulterants.

Edible vegetable oil should also be free from heavy metals like Lead and Arsenic and other contaminants, fungus, bacteria and other suspended impurities. It should contain only the permitted antioxidants

which are substances that improve the shelf life of the oil.

It should not be Rancid. Rancidity is denaturing of oil, which is due to the presence of moisture, oxygen and bacteria. Rancid oil is carcinogenic and is less Nutritive.

A good label containing all relevant information is a must as it provides all important information about the oil.

What the Label should contain:

It is mandatory that the label should contain the following information:

Product name

Manufacturer's Name and Address

Batch No, Code No / Lot No

ate / Month of manufacture

Best Before Use date

Nutritional information

Vegetarian Logo

Consumer complaint number. These details are necessary in case of any complaint with regard to the quality of the oil.

It must also mention the added synthetic antioxidant.

A Label must carry the declaration, "FREE FROM ARGEMONE OIL" as per the PFA, FS & S Act. It can also carry other optional information like claims on (Health, Quality), as well as the recommended storage condition.

The claims on the oil packet, by the manufacturer actually guide the consumers to make a choice in their favour and should not be exaggerated or false. Since the label provides all details about the oil, it is the consumer's responsibility to read the label very carefully before buying



SIGNS OF DETERIORATED OIL

Oil darkens with heat because the oil and food molecules burn when subjected to high/prolonged heat.

The more you heat oil, the more slowly it will pour. Its viscosity changes because of changes to the oil's molecular structure.

Loose absorbent particles accumulate as sediment at the bottom of the storage container or are suspended in the oil.

When smoke appears on the oils' surface before the temperature reaches 190 degrees C (375 degrees F), your oil will no longer deep-fry effectively.

If the oil has a rancid or "off" smell or if it smells like the foods you've cooked in it, it should be discarded.

EXTEND THE OIL'S LIFE

The longer oil is heated, the more quickly it will decompose. Avoid preheating the oil any longer than necessary. If you're cooking more than one batch of food, quickly add each new batch, unless time is needed to adjust the cooking temperature. Turn off the heat as soon as you've removed the last food batch from the oil. Cool.

Use a quality deep-fat frying thermoware, even if you're using an electric deep fryer. Shake off loosely attached break crumbs from breaded food before adding the food to the oil. Loose crumbs and other particles scorch quickly and pollute your oil. Use a small strainer or slotted spoon to remove as many crumbs as possible.

When the oil has cooled enough that it is safe to handle, strain it through paper towels, coffee filters or cheese cloth into

its original empty container or a clear glass jar. Do not mix it with unused oil.

Store the oil, tightly sealed, in a cool, dark place or in the refrigerator. The oil may cloud in the refrigerator, but it should become clear again at room temperature with no ill effect.

TESTING AND COMPARISON TO HELP SELECTION OF BRAND**What is Comparative Testing?**

Comparative Testing is a formal process by which different brands of a product category are tested for Quality, for conformance to the minimum standards laid down by Bureau of Indian Standards and how much the brand exceeds these minimum standards, potential health and safety hazards even under not-normal usage of the product and verification of special claims by manufacturers, if any. The results for all the tested brands are published in a Comparative Test Report which would provide consumers information to make an informed choice.

CONCERT has undertaken this project of Comparative Testing for Southern Region under a grant from Department of Consumer Affairs, Government of India. In the first year, Concert will be testing 7 products and 3 services. One of the products selected for testing is the Edible Vegetable Oil.

It is very difficult for every housewife to know if the oil is adulterated or contaminated, if it contains only the permitted antioxidant. To guide a consumer to the right brand 24 most popular edible vegetable oil brands from

the six varieties of oil commonly used in Southern States (Tamilnadu and Puduchery, Kerala, Karnataka and Andhra Pradesh such as Groundnut Oil, Coconut Oil, Sunflower Oil, Sesame Oil, and Palmolein Oil) were tested.

PARAMETERS USED FOR TESTING

Each analytical parameter for individual oil obtained from NABL laboratory is tabulated under the following heading

-  OFFER & PACKING WITH LABEL - Conformance to the standard
-  HEALTH & SAFETY CRITERIA – (presence of adulterants heavy metals, fungus, solvent residue).
-  QUALITY CRITERIA (Rancidity , moisture content, presence of antioxidants and their type, presence of suspended particles, extent of un saturation etc)
-  MAXIMUM RETAIL PRICE (MRP).
-  SENSORY EVALUATION (colour, appearance, and smell of the oil at the room temperature, stickiness of the oil, taste immediately after frying) Samples of papad were fried and stored for a week and the smell was observed after a week.



Our Comparative Testing Photo Gallery



CODING OF OILS FOR GOURMETS TEST



EVALUATION OF SMOKING POINT



GOURMETS SENSORY EVALUATION AND SCORING



FUNCTIONAL CHARACTERS OF OILS



ANALYSIS OF EDIBLE VEGETABLE OILS



GAS LIQUID CHROMATOGRAPH AND FATTY ACID PROFILING

SAMPLES WHICH WERE TAKEN UP FOR ANALYSIS



SUMMARY OF TEST REPORT WITH SCORING

BRAND NAME	OFFER & PACKING LABEL	HEALTH & SAFETY	QUALITY	PRICE MRP 500/1000ml	APPEARANCE & SMELL	STICKINESS	TASTE OF PAPPAD JUST AFTER FRYING	TASTE OF PAPPAD AFTER A WEEK
COCONUT OIL								
KIL SHUKH (KL)	GOOD	VERY GOOD	FAIR	65* Pouch	Pale yellow Cloudy Oily smell	Slightly thin	Spicy	Oily
VVO GOLD (TN)	POOR	FAIR	GOOD	111* Pet bottle	Pale yellow Clear Oily smell	Slightly Thin / Greasy	Normal	Oily
SHALIMAR'S POPULAR (AP)	FAIR	GOOD	GOOD	110* Pet bottle	Pale yellow Cloudy Oily smell	Thin	Normal	Oily
KIL NIRMAL (KA)	FAIR	GOOD	GOOD	73.50* Pouch	Pale yellow Cloudy Oily smell	More Greasy	Normal	Oily
PALMOLEIN OIL								
LIBERTY ANCHOR (KL)	GOOD	GOOD	GOOD	78** Pouch	Dark yellow Clear Odourless	Slightly thin	Normal	Normal
ROOBINI (KL)	FAIR	FAIR	FAIR	76** Pouch	Dark yellow Clear Odourless	Slightly thin	Oily	Normal
TN GOVT ENRICHED (TN)	FAIR	GOOD	GOOD	25** Subdivided	Slightly yellow Cloudy Odourless	Slightly thin / Thin	Normal	Rancid
NEW PRIYA PALM RICH (AP)	FAIR	VERY GOOD	GOOD	73** Pouch	Dark yellow Cloudy Odourless	Greasy	Normal	Rancid
RUCHI GOLD (KA)	GOOD	GOOD	VERY GOOD	80** Pouch	Yellow Clear Odourless	Thin	Normal	Normal
SUNFLOWER OIL (REFINED)								
RUCHI SUNRICH (KL)	GOOD	GOOD	FAIR	102** Pouch	Colourless Clear Odourless	Thin	Normal	Oily
GOLD WINNER (TN)	GOOD	GOOD	VERY GOOD	86** Pouch	Colourless Clear Odourless	Slightly thin	Normal/oily	Pungent
NEW PRIYA PREMIUM (AP)	FAIR	FAIR	GOOD	90** Pouch	Pale yellow Clear Odourless	Greasy	Oily	Rancid
VIAVA PREMIUM BRAND (AP)	GOOD	VERY GOOD	VERY GOOD	93** Pouch	Pale Yellow Clear Odourless/oil smell	Thin	Normal	Normal
GEMINI (KA)	GOOD	GOOD	VERY GOOD	120** Pouch	Colourless Clear Odourless	Thin	Normal	Normal

Note: * Price for 500ml ** Price for 1000ml

SESAME OIL (Raw)								
KHADI GU (TN)	POOR	VERY GOOD	GOOD	73* Pouch	Dark yellow clear oil smell	Greasy	Spicy	Pungent
ANJALI (TN)	GOOD	VERY GOOD	GOOD	72* Pouch	Slight yellow clear oil smell	Thin	Spicy	Normal
MANSON (AP)	FAIR	VERY GOOD	GOOD	77* Pouch	Slight yellow clear oil smell	Slightly Thin	Spicy	Normal
NANDINI (KA)	POOR	FAIR	POOR	63* Pouch	Slight yellow clear Odourless	Greasy	Spicy	Oily
IDHAYAM (KA)	FAIR	GOOD	GOOD	85* Pouch	Dark yellow clear oil smell	Greasy	Normal	Oily
GROUND NUT OIL (Raw & Refined)								
GANAPATHY (KL) (Refined)	GOOD	FAIR	FAIR	130** Pouch	Pale Yellow Clear Oil Smell	Thin	Normal	Oily
SVS (TN) (Refined)	GOOD	GOOD	VERY GOOD	108** Pouch	Pale Yellow Clear Odourless	Thin / Greasy	Oily	Oily
GOLD WINNER (TN) (Refined)	GOOD	VERY GOOD	VERY GOOD	109** Pouch	Colourless Clear Odourless	Thin	Normal / Oily	Oily
VIAVA PREMIUM (AP) (Raw)	GOOD	FAIR	GOOD	115** Pouch	Dark Yellow Cloudy Oil Smell	Greasy	Spicy	Pungent
DHARA (KA) (Raw)	FAIR	GOOD	GOOD	120** Pouch	Yellow Clear Oil smell	Slightly Thin	Normal	Oily

Each criterion, sub-parameter, and parameter is rated individually on a 5-point scale. The rating given is 0 (Poor), 1, (Fair), 2 (Good), 3 (Very Good), and 4 (Excellent). KL –Kerala, TN- Tamilnadu, KN-Karnataka, AP- Andhra Pradesh

Note: Any parameter, which fails to meet the test standard were rated as Poor or Fair based on the deviation from the standard. When the tests meets the defined standards, the product will be given the scoring of Good When it exceeds the standards significantly and shows appreciable innovation it will be rated Excellent.

SENSORY EVALUATION

Though the health, safety and quality parameter are paramount for procuring oil, the characteristic odour (smell), its natural colour, and the lingering taste, which each oil or specific brand provide, forms consumer opinion that very often influences their decision. The sensory evaluation in the table corresponds to that indicated by the majority. When there was equal number of responses expressing

different observations, in such cases two findings for the same test have been indicated. The spicy, pungent and rancid tastes are the unpleasant lingering after taste left in the mouth.

We present the results against these criteria, which in our opinion is fair, and without any subjective element. The consumers are encouraged to study these results and make their buying decisions based on their requirements and judgment.

NON CONFORMANCE TO STANDARD SPECIFICATIONS

Revelation:

Nandhini brand of Sesame oil, manufactured by M/S. Radha Krishna Oil mills, Bangalore-84 was found to be adulterated with cheaper oil.

The health and safety, as well as the quality criteria were rated fair or poor because these brands were contaminated with small quantity of lead they, contained fungus or the moisture and acidity values were very high and they were in the verge of turning rancid.

IMCOMPLETE AND IMPROPER LABELLING

In the following brands the statutory warning "Free from Argemone Oil is absent":

Brand Name	Nature of Oil
KHADI Gramodhyog	Sesame Oil
NANDHINI	Sesame Oil
SHALIMAR	Coconut Oil
VVD Gold	Coconut Oil
NIRMAL	Coconut Oil
DHARA	Groundnut Oil

The following brands of oils failed in Label Declarations as per FSSA Regulation 2011

Brand Name	Absence of Statutory Declaration
KHADI Gramodhyog	a) Nutritional Information b) Batch Number c) Consumer Complaint Number
NANDHINI	Nutritional Information
IDHAYAM	Nutritional Information

The following brands had exaggerated claims present on the Labels

New Priya refined Sunflower oil:

Manufactured by Ushodaya Enterprises P Ltd, Hyderabad - 39 claimed the oil to be heart friendly and anti ageing. As per the FS& S Regulation 2011, such claims are prohibited when this is applicable to all sunflower oils.

Ganapathy brand of refined Groundnut oil:

Manufactured by Ganapathy Refineries, Vellakoil, Tamilnadu, had the rate, batch number printed using online printing which vanishes after sometime leaving no information on the label.

VVD GOLD brand of Coconut oil:

Manufactured by VVD & Sons Pvt Ltd, Chennai -8, had the term "edible oil" printed in very fine unreadable font size.

We are certain that the next time we question a woman on her choice of cooking oil, she will not just tell us the brand she is using but also why she is using the particular brand.