DOI: 10.56511/JIPBS.2016.v3.i02.pp59-62

Journal of Innovations in Pharmaceuticals and Biological Sciences
www.jipbs.com

JIPBS

ISSN: 2349-2759

Review article

Cooking oils : A review

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Abstract

India represents unique biodiversity profile and peoples of different region possess various eating habits including cooking oils, groundnut, coconut, mustard, sesame, safflower, linseed, castor oil are major traditionally used oils in India along with soya bean, rice bran, cottonseeds, sunflower and palm oil. The diversified culture of India offers different preference of cooking oil in different regions depending upon the availability of oils in that particular region, like; South Indian and people from west region prefer groundnut oil while in East and Northern India mustard and rapeseed oils are used commonly. Similarly, few regions in South India prefer coconut and sesame oils while some places of Northern India witnessed utilization of vanasapati oil.

Key words: Oil, Cooking, Refined Oils, Unrefined Oils, Fats.

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1. Introduction

Ayurved and cooking oils

The traditional medicinal system of India mentioned oils for different uses like; for *massage, nasya, basti, kavala, gandusha* etc. The ancient text suggested that oil represents properties of its origin. As per ayurveda oils possess *madhur ras, kashaya anuras, sukshma, vyavayi, pittakar, malamutra vibhandkar, ushana, medha* and *agnideepak* properties and help to maintain *kapha* and *balya* along with skin rigidity (charak samhita sutra 27).

As per description of *charaka* and *sushrut* oils offers beneficial effects for skin and eyes when used externally. *Achyara vagabhat* mentioned that oils help to maintain normal health as it made *krush* person (thin person) to *Pusta / bruhaniya* and *sthula* person (fatty person) to *krusha* person. Traditional text also mentioned sesame (*til tail*) oils as good one amongst the all oils while *kusumbh* oil as worst. It has been also considered that oils medicated with drugs offers properties to cure many diseases (sarvarogjit) (Ashtangra sangarahsutra 6).

Oils are composed of three fats namely monounsaturated, polyunsaturated and saturated fats. Cooking oils are considered high in fat; they should not consume excessively. The confirm elimination of cooking oils from diet may help to cut out fat deposition. The consumable oil must contain balanced combination of

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monounsaturated, polyunsaturated and saturated fats. The saturated fats should be in lesser amount amongst the three on the nutrition value because they are more harmful. Monounsaturated and polyunsaturated fats are belongs from category of unsaturated fats and considered good fats and offers some health beneficial effects like; Improve cholesterol levels, Reduce inflammation, Stabilize heart rhythms.

Monounsaturated fats may be found in avocados, almonds, pecans, hazelnuts, pumpkin seeds, olive and peanut. Polyunsaturated fats can be found in oils such as flaxseed, soybean, corn and sunflower [1-3].

Refined Oils

Refined oils involve sophisticated mechanical and chemical processes to extract the oil from seeds, due to which natural nutrient removed out from the seeds and a final product formed which oxidizes easily. These oils are more prone to form free radical, which causes cancer. Removal of particles and resins and makes naturally refined oils more stable which can be stored for longer period of time. These oils also offers property like resistant to smoking, afford high-heat cooking and frying. The refined oils, which are recommended, for high-heat cooking and deep-frying are sunflower and peanut oil. High monounsaturated fats of these oils increases resistance to the high heat. Some refined vegetable oils are hydrogenated**,** which makes them solid at room temperature. But there is disadvantage of hydrogenation process is that this process damages the fatty acids of oils and forms trans fatty acids which are considered harmful to human health. There are some demerits of the excess consumption of vegetable oils generated from chemical extraction processes like; elevation in blood triglycerides, impaired insulin response, carcinogenicity and heart related disease.

Unrefined Oils

Unrefined oils are lightly filtered to remove large particles this oil involves sesame or olive oil which may have cloudy appearance, due to light purification process these are compromised with quality. Unrefined oils possess more pronounced flavors, colors and fragrances than refined oils. Unrefined oils offer more nutritional value but shorter storage profile than refined oil. Unrefined oils are used unheated in dressings or with low heat sautéing or baking. On overheating the natural resins and beneficial particles of these oils burn and developed unpleasant flavors with harmful property.

Smoke Point of oils

Smoke point is the temperature at which oil start smoking and produces toxic fumes along with harmful free radicals. Due to variation in chemical property various oils offers different smoke points, therefore some oils possess better suitability for cooking at higher temperatures than others. As per general consideration it can be concluded that more refined oil offers higher smoke point; therefore vegetable, peanut and sesame oils possess highest smoke points [2-4].

Cooking Oils to Avoid

Oils are composed of balanced combination of fats but the fat ratios in some oils are imbalanced which may be harmful to the health, these oils are commonly used in deep-frying which is unhealthy to begin with and can even contain genetically modified ingredients. Vegetable oils are

loaded with an improper balance of omega-3s and omega-6s, may increases risk of many degenerative diseases; therefore following unhealthy oils must be avoided: Corn, Canola, Soybean, Sunflower, Safflower.

Table 1. Use and Smoke Point of Some Oils

Name	Description/Uses for Refined Oils	Smoke Point
Avocado	This rather unusual light, slightly nutty tasting oil is considered primarily to be a novelty. This oil is often made from damaged and cosmetically inferior avocados.	520°F
Canola	Light, golden-colored oil, similar to safflower oil. Low in saturated fat. Extracted from the seeds of a plant in the turnip family (the same plant as the vegetable broccoli rabe). Used in salads and cooking, mostly in the Mediterranean region and India; also used in margarine and blended vegetable oils. It has a mild flavor and aroma.	400°F
Corn oil	Made from the germ of the corn kernel. Corn oil is almost tasteless and is excellent for cooking because it can withstand high temperatures without smoking. It is is used to make margarine, salad dressings and mayonnaise.	450° F
Grape Seed	This light, medium-yellow, aromatic oil is a by-product of wine making. It is used in salads and some cooking and in the manufacture of margarine.	400°F
Lard	Baking,	361-401°F
Peanut	Made from pressed, steam-cooked peanuts. Peanut oil has a bland flavor and is good for cooking because it doesn't absorb or transfer flavors.	450°F
Safflower, Regular	Clear, almost flavorless oil made from the seeds of safflowers. Safflower oil is a favorite for salads because it doesn't solidify when chilled. Sunflower oil is pale yellow and has a bland flavor. It is good all-purpose oil.	450°F
Soybean	Highly refined soy oil is reasonably priced, very mild and versatile, accounting for over 80% of all oil used in commercial food production in the U.S. This is a good all-purpose oil that is also used in cakes and pastries	450°F

Even though the fat content in oils may be harmful and complete eliminating oils from diet is not the even the easier and solution; thus by consuming the healthiest oils, using appropriate temperature, the harmful effects of oils can be avoided. Ayurveda also suggest that the consumption of oil must be reduced as the ageing process since in older age excess consumption of oil may increase problem associated with heart disease. The oils like corn and canola must be avoided to maintain nutritional diet [3-5].

Oils Storage

Air, heat and light cause oils to oxidize and turn rancid. Natural oils should smell and taste fresh and pleasant. Rancid fats may cause cancer and heart disease. For maintaining quality of flavor and nutrition,

it is best to store oils in an airtight glass bottle in a cool, dark place.

Conclusion

Oils are types of fats and should be used in moderation. Specific attention should be paid on smoke point of oils before use. Storage of oils is also important factor and cooking oils should be used as early as possible to reduce its rancidity. The excess consumption of oil in older age must be avoided and cooking oil should contain balanced nutritional value of good fats. Study also suggested that oils, which are considered harmful for health, must be avoided for cooking purpose.

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