



FSSAI issues draft notifications for fats, oils and fat emulsions

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FSSAI has put out draft notifications in reference to fats, oils and fat emulsions revising the standards for refined vegetable oil, sunflower seed oil and sunflower seed oil (high oleic acid), with the inclusion of a new standard for chia oil.

The notification was issued under the Food Safety and Standards (Food Products Standards and Additives) Regulations, 2011, and suggestions, views and comments on the same were invited from the stakeholders.

The draft defined the revised standard for refined vegetable oil as, "Any vegetable oil which is obtained by expression or solvent extraction of vegetable oil bearing materials, deacidified with alkali and/or physical refining and/or by miscella refining using permitted food-grade solvents and/or degumming using phosphoric/citric acid and any suitable food-grade enzyme, followed by bleaching with absorbent earth and/or activated carbon and deodourised with steam. No other chemical agent shall be used."

Also the name of the vegetable oil from which the refined oil has been manufactured shall be clearly specified on the label of the container. In addition, specified edible oils shall also apply, except for acid value, which shall be not more than 0.6. Moisture shall not exceed 0.10 per cent by weight.

Sunflower seed oil

Sunflower seed oil is defined as the oil obtained from clean and sound sunflower seeds or cake from the plant *Helianthus annuus* Linn (Family: Compositae). Further, if the oil is obtained by the method of solvent extraction, it shall be supplied for human consumption only after refining. Additionally, it shall have flash point (Pensky Marten closed method) - not less than 250°C.

Sunflower seed oil (High oleic acid)

Sunflower seed oil (high oleic acid) means the oil obtained from clean and sound sunflower seed or the high oleic acid oil-bearing sunflower seeds of *Helianthus annuus* L. It shall contain not less than 75 per cent oleic acid as percent of total fatty acids.

Chia oil

Chia oil means the oil expressed from the clean and sound seeds of chia (*Salvia hispanica*) without the application of heat. The test for argemone oil shall be negative.

The draft also notified to add provision with reference to partially-hydrogenated and winterised soybean oil, partially-hydrogenated soybean oil, table margarine and fat spread. The new provision included is that the oil shall not contain trans-fatty acids more than five per cent by weight. Provided that the maximum limit of trans-fatty acid shall not be more than two per cent by weight, after two years from the date of final notification of the above said provision.

Susmita Chandra, pool scientist and faculty, Maulana Abul Kalam Azad University of Technology, West Bengal, said, "Dietary trans-fatty acids occur naturally in different oil based products, like in milk, natural oil, meat and some of the fermented products. Naturally, it can be produced by the action of different anaerobic bacteria, which can change the unsaturation in the saturated form by trans addition."

"Nowadays, it is a challenge to stop the rampant use of trans-fat in many of the restaurants and street foods, because they are economically highly viable. Trans fats are easy to produce and inexpensive and last for a long time without any undesirable change," she added.

"Their use gives foods an enhanced desirable taste and texture. They are preferred by the fast food manufacturers, because oils with trans fats can be used many times in commercial fryers at a high flame for deep frying," Chandra said.

She added, "But unfortunately, trans fat is directly linked with many health problems. For instance, increasing the LDL cholesterol level in blood, is related to cardiovascular, renal and hepatocellular diseases. It is also known to be associated with the development of atherosclerosis and type-II diabetes."

"So it is quite important to restrict the level of trans-fat consumption at the lowest possible level and also restrict the use of same by the street food and restaurant business holders," Chandra said.

Diacetyl as a flavouring substance

Meanwhile, the country's apex regulator has also asked for suggestions and views from stakeholders for draft with regards to the restriction on the use of diacetyl as a flavouring substance in oils and fats under the Food Safety and Standards (Prohibition and Restriction on Sales) Regulations, 2011.

To this, Chandra said, "Diacetyl, or 2,3-butanedione, is a small, highly volatile aromatic compound produced industrially by the dehydrogenation of 2,3-butanediol. Consumers who eat various foods are commonly exposed to levels of diacetyl (orthonasally and retronasally) that well exceed 0.2 parts per million (ppm)."

"Also, when diacetyl present at a high concentration (exceeding 5-7ppm), or even in the range of 1-4ppm, to produce a highly desirable buttery or butterscotch character may result into many detrimental effects," she added.

"So far known, inhaling more than its limit, especially at the occupational level, leads to undesirable effects in the lungs. It can invade and injure the lung tissues in the form of aerosol crossing its sensory threshold limit," Chandra said.

"Further research is going on the effects of intake of diacetyl at a higher level, which are yet to come forth. So certainly, restrictions are required in the use of diacetyl," she added.

Diacetyl and acetoin are two compounds arises naturally as a byproduct of many fermentation processes.

Diacetyl acts as an important aroma-producing compound in butter, margarine, sour cream, yoghurt and cheese (including Cheddar, Gouda, Camembert, Swiss, Maasdam, quarg, Mexican Chihuahua, ricotta, cottage and goat cheeses).

It is naturally present in wine, brandy, balsamic vinegar, roasted coffee, honey, ensilage, and many other fermented foods.

Chemically-produced diacetyl and its derivatives are also added to develop the buttery flavour in many processed foods.

Stating that it was a good move, Aparna Kuna, senior scientist, MFPI - Quality Control Laboratory, Prof Jayashankar Telangana State Agricultural University, Telangana, India said, "Omission of diacetyl from the category of additives for fats and oils industry is good in the sense that excess exposure to diacetyl could be of toxicological significance."

"However, the usage of diacetyl within 5ppm exposure limitation is not dangerous, as is shown in some occupational health and safety concern studies. If the safety limit of the additive usage in foods is followed, it is absolutely fine to continue to use diacetyl as a flavour additive," she added.

"But, since we cannot monitor the usage of amount of additive used by manufacturers, it is good to be withdrawn from the additives list as many food additives found in our regular foods are much beyond the limitations set by our standards. Most of the food manufacturers use many food additives beyond the set limits, which pose various health risks," Kuna said.