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CERC-ENVIS, Resource Partner to MoEF&CC works on the thematic mandate of 'Environment Literacy - Eco-labelling and Eco-friendly Products' This bi-monthly e-bulletin features latest of Environment, developments and innovations.

Green Issue



Repurpose Used Cooking Oil (RUCO)

FSSAI launched Repurpose Used Cooking Oil (RUCO), a system to enable the collection & conversion of used cooking oil to biodiesel. RUCO benefits human health, generates employment, helps in economic growth, reduces the import dependency, reduces carbon footprint & leads the world towards cleaner environment. FSSAI has implemented EEE strategy; **Education** i.e. educating both the consumers & food business about public health consequences of spoiled used cooking oil, **Enforcement** particularly amongst large food processing plants, restaurants & fast food joints that are frying in large quantities & **Ecosystem** for collection of used cooking oil and producing biodiesel from it.



The EEE approach is to divert used cooking oil from the food value chain & curb illegal practices which are harming human health and the environment. This strategy ensures good health and welfare for all 130-crore citizens, aiding energy security, climate change mitigation, and leading to environmentally sustainable development. FSSAI has also set the limit for Total Polar Compounds (TPC) to be maximum 25%, beyond which the vegetable oil is not suitable for use.

Source: <https://eatrightindia.gov.in/ruco/#>

Used Cooking Oil

India is one of the leading consumers of vegetable oil. According to Food Safety and standards Authority of India (FSSAI), India consumes about 23 million tonnes of cooking oil annually and has the potential to recover & use about 77% of this for production of biodiesel; having the estimated value of Rs. 18,000 crore per year.

Edible fats and oils can be obtained from terrestrial or aquatic animal, seeds, leaves of many plants, pulp, nuts of various fruits. Cooking oils consist of triacylglycerides; composed of different fatty acids. It is commonly used in the food industry and home cooking globally and is the primary source of unsaturated fats & Vitamin E in human diet.

It is a very common practice of reusing of same cooking oil amongst the food business operators, road-side vendors and households for frying/cooking. Using the same oil repeatedly for frying leads to changes in the physico-chemical, nutritional and sensory properties of the oil. Repetitive use of same frying oil forms polar compounds. These polar compounds causes lipid deposition, impaired energy metabolism and oxidative stress, resulting in toxicological effects on the human health. These compounds often causes disease such as Hypertension, Atherosclerosis, Alzheimer's, liver diseases etc.

Used Cooking Oil (UCO) is discarded in an environmentally hazardous way which leads to sewer and drainage blockage. Sometimes it is drained in the streams or nallah openly, thus harming the water bodies and poses harm to the aquatic life. Also, used cooking oil from organised food business operators repeatedly find its way to small restaurants/dabhas & road side vendors which may lead to adverse health effects.



Non-edible vegetable oil, acid oil, used cooking oil or animal fat & bio-oil are used to produce biofuel. Used cooking oil is a potential feedstock for biodiesel. India's 2018 biofuel policy aims to blend 5% biofuel by 2030. The Government of India envisions that the targets will be met through:

- 1) Growth in domestic biofuel production;
- 2) Use of multiple feedstock; and
- 3) Encouraging biofuel blending to supplement gasoline and diesel use in vehicles and machinery, as well as in stationary and portable power applications.

Food Safety and Standards Authority of India has notified the Food Safety and Standards (Licensing and Registration of Food Businesses) First Amendment Regulation, 2017 w.r.t quality of vegetable oil for repeated frying in the official gazette of India.

They released guidelines for collection of UCO from Food Business Operators (FBOs) to produce biodiesel that includes:

- Authorization mechanism of biodiesel processors
- Setting up of supply chain for collection of UCO
- Provisional certification for aggregators by biodiesel processor

FSSAI issued standardised test methods and developed a Standard Operating Procedure (SOP) to ensure safe handling and disposal of UCO by FBOs. The SOP outlines procedures to be followed for handling and disposal of UCO for households, small and large FBOs.

Used Cooking Oil based biodiesel has a potential to contribute to over 10% of the target of Rs.100,000 crore of import substitution on petroleum products by 2024. It can potentially replace or supplement palm stearin as feedstock in 3 years and in 5 years' time the biodiesel manufactured can be equivalent to ethanol produced. (Source: FSSAI)

Biodiesel opens a great entrepreneurship opportunity and employment in the country. Honorable Prime Minister Shri Narendra Modi has said that "Social entrepreneurs can benefit from Swachh Bharat programme as it has huge business element, while stressing on the need to convert waste into wealth. He has said that waste to wealth is a belief that is gaining momentum. If we consider waste as waste, then we have lost our precious possession."

Source: www.fssai.gov.in, <https://eatrightindia.gov.in/ruco/#>, <https://www.sciencedirect.com/topics/food-science/edible-oil>
<https://eatrightindia.gov.in/ruco/file/Background%20Note-UCO.pdf>

Eco-Tips

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Eat right, Stay healthy and keep the environment safe.

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