

PAHs in Coconut oil testing facility available at Quality Testing Laboratory, CDB Institute of Technology, Vazhakulam, EKM, Kerala



Polycyclic aromatic hydrocarbons (PAHs) are a class of chemicals that occur naturally in coal, crude oil, and gasoline. They are produced when coal, oil, gas, wood, garbage, and tobacco are burned. They are also created in car and diesel exhaust, smoked or charbroiled food, wood burning stoves, cigarette smoke condensate, forest fires and volcanoes. PAHs generated from these sources can bind to or form small particles in the air.

Food contamination by PAHs is due to the natural environment's contamination and also through thermal treatment processes used in the preparation and manufacturing of foods. Barbecuing, smoking or charring food over a fire greatly increases the amount of PAHs in the food, edible oils and fats are also contributing sources of PAHs. Contamination of vegetable oils can mainly be a consequence of the exhaust gases during oilseed drying processes or contamination through the extraction solvent /high temperature during extraction of oil from seeds. To a lesser extent this is a result of atmospheric deposition onto the plant material and uptake by the oilseed plants through soil. This contamination may be then transferred to the final product result in increased amount of polyaromatic hydrocarbons in a final product.

Long-term exposure to low levels of some PAHs has carcinogenic potential so they have to be monitored in the environment and food stuff. Although hundreds of PAHs exist, some of them are more common; The European Union 835/2011 commission directive defines the maximum content of benzo (a) pyrene in different food stuffs. Benzo (a) pyrene is considered to be a primary marker for the presence of PAHs and must not exceed 2ppb in edible oils. To improve the profiling of PAHs in food products, benz(a)anthracene, chrysene, and benzo(b)fluoranthrene are defined as additional markers. The maximum contamination for those four PAHs together must not exceed 10 ppb. **Coconut oil intended for direct human consumption or used as an ingredient in food –the maximum permissible limit of benzo (a) pyrene is 2 ppb and the sum of PAHs is 20 ppb.**

Quality testing laboratory of CDB is equipped with sophisticated HPLC instrument for the detection of PAHs in edible oils in ppb levels. Agilent 1260 infinity LC System is used for the direct analysis of polycyclic aromatic hydrocarbons (PAH) from edible plant oils.

It is essential for coconut oil exporters to analyse and ensure that the quality parameters, metal contaminants and PAHs content of oil are within the permissible limits. Exporters can utilize the facility at QTL-CDB for analysing PAHs content of their oil at a rate of Rs.4956/- (including GST).

For more details pls contact 0484- 2679680

Deputy Director(TD& E)