

## **PAHs in Olive Oils: An Analytical Survey**

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Polycyclic aromatic hydrocarbons (PAHs) are a class of well known carcinogenic compounds originating from incomplete combustion of organic products and geochemical processes. Due to the wide distribution of PAHs in the environment and their lipophilic nature, vegetable oils, including olive oils, can be contaminated with these xenobiotic substances.

At EU level, no specific method for the determination of PAHs in vegetable oils is officially set and, according to the EU Directive 10/2005, laboratories may select any validated method that satisfies the performance criteria indicated in the Directive.

In 2005, an inter-laboratory test was organised in Italy to test the capability of two new methods for routine analysis in quality control. The results of the study were statistically evaluated and both methods satisfy the validation criteria provided by EU.

The present study had the aim to investigate the level of PAHs in virgin olive oils (extra virgin and virgin lampante) produced in the main Mediterranean countries (Italy, Spain, Greece, Tunisia).

The sampling was performed directly from the mills during production time to verify the authenticity of the samples and the process and environmental conditions. Hundreds of samples have been collected during the last crops and a representative picture is available.

Based on the analytical data, we can summary that the level of contamination referred to carcinogenic PAHs is not relevant, far below the legal limit set for edible oils (max 2 ppb for BaP).

The main factors affecting contamination are environmental (from up-stream steps to milling process) and sometimes un-proper agricultural practices.

Anyway as food safety is more and more relevant for consumers and quality evaluation, the situation is improving year by year according to better knowledge and good agricultural practices implementation.