

Let's talk about ... olive oil

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From foods we get the basic nutrients to maintain important functions in our body. Minor components in foods can also play important roles: they can give pleasant colours, tastes and flavours to fruits and vegetables, when consumed in a regular way they can contribute to minimize the occurrence of some diseases in humans, but they can also be responsible for toxic effects or off-flavours.

The beneficial effects of olive oil (OO) consumption on cardiovascular risk factors are recognized and attributed to the high levels of monounsaturated fatty acids (MUFA) and phenolic compounds. Food and Drug Administration (FDA) allowed a qualified health claim based on the MUFA content of OOs and more recently the European Food Safety Authority (EFSA) provided a scientific opinion about a cause effect relationship between the consumption of minor components as phenolic compounds of OO, and the protection of LDL particles from oxidative damage.

Phenolic compounds, namely hydroxytyrosol, have shown a broad spectrum of bioactive properties, including anti-inflammatory and antioxidant effects. The variability among phenolic compounds in OOs depends mainly on the olive cultivars used and geographical location. The characterization of the OOs is mandatory in order to understand the effects that may be expected from its consumption. These bioactive effects can be evaluated in *in vitro* assays, but human intervention trials are also necessary. Biochemical parameters must be monitored as well as the phenolic compounds and their corresponding metabolites in biological fluids (blood, urine and faeces), in order to elucidate about the compounds that may contribute more to the biological effect observed.

Olive oil was chosen as a case study, to illustrate the type of experiments that must be performed when trying to correlate chemical composition and biological effects after consumption of foods in a regular and equilibrated diet.

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