**Maximising the Healthy Compounds in Olive Oils**

Olive oil has grown in popularity across the globe thanks to its many health benefits, including anti-oxidant and anti-inflammatory properties. It is also high in healthy omega-3 and omega-6 fatty acids, which support cardiovascular health and brain health, in addition to reducing the risk of inflammatory diseases.

A special class of healthy compounds found in olive oil, called secoiridoids, have gathered much attention in the last two decades. The type, ratio, and amount of the four major secoiridoids found in olive oil depends on several factors.

These include the olive variety, the region in which it was produced, cultivation practices, and the process used to extract the oil. Extra virgin olive oil provides the highest secoiridoid content and the most health benefits.

Understanding how to optimise the secoiridoid content in extra virgin olive oil is a key focus for many food scientists and producers.

Towards this aim, Dr Ilario Losito from the University of Bari Aldo Moro and his colleagues extensively analysed 60 different types of extra virgin olive oils produced in Italy. They used specialist chemistry techniques to determine the secoiridoid content of these olive oils, and then applied statistical analysis to their data.

The 60 chosen olive oils were produced in Apulia and Sicily in Southern Italy, and Tuscany, Lazio, and Umbria in Central Italy. Selecting olive oils from these regions allowed the researchers to explore how growing climate and olive variety can affect secoiridoid content.

Most of Apulia and Sicily are hot temperate zones, while regions in Central Italy are characterised by a sub-coastal temperate climate. Specific olive varieties are usually employed for oil production in these regions.

Olive oil is usually produced by spinning olive paste extremely fast to separate the oils from solids and water, in a process called horizontal centrifugation.

From their analysis, Dr Ilario Losito and his team showed that the processing technique of ‘two-phase horizontal centrifugation’ – which does not involve adding water to olive paste – produces olive oils with higher secoiridoid content. In comparison, they found that oils processed using ‘three-phase horizontal centrifugation’, which involves adding water, had a lower secoiridoid content.

The team also noticed some regional trends in the olive oils they analysed. Two of the four major secoiridoids – the aglycones of oleuropein and ligstroside – were higher in oils originating in Apulia in Southern Italy, while the other two secoiridoids – oleacin and oleocanthal – were higher in oils from olives grown in Central Italy. All four secoiridoids were found in lower amounts in olive oils produced in Sicily, due to the olive varieties typically grown within the region.

Armed with this crucial knowledge, farmers and olive oil producers can now aim to produce olive oils with even greater health properties, to benefit consumers around the world.

**BIO**

Ilario Losito

SMART Interdepartment Research Center

University of Bari Aldo Moro

Bari, Italy

**E:** ilario.losito@uniba.it

**W:** [www.uniba.it/it/ricerca/centri-interdipartimentali/smart](http://www.uniba.it/it/ricerca/centri-interdipartimentali/smart)

Summary of the paper ‘Bioactive Secoiridoids in Italian Extra-Virgin Olive Oils: Impact of Olive Plant Cultivars, Cultivation Regions and Processing’, in Molecules. [doi.org/10.3390/molecules26030743](https://doi.org/10.3390/molecules26030743)

Financial support for this video was provided by the SMART Interdepartment Research Center of the University of Bari Aldo Moro, Bari, Italy, and the ‘Progetto VIOLIN, funded by AGER - Fondazioni in Rete per la Ricerca Agroalimentare, Milan, Italy’.