

Book Review

Olive and Olive Oil Bioactive Constituents

Edited by Dimitrios Boskou

AOCS Press, Illinois, 2015

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11 Chapters, 400 pages, 32 contributing authors

The editor of this multi author book, Professor Boskou, is well known for his work in food science, particularly in the field of olives. He is the author of the authoritative book, *Olive Oil. Chemistry and Technology* published by AOCS.

This technically comprehensive book brings together many different perspectives on the science behind claims that the constituents of olives and olive oil provide the main basis for the health benefits of the Mediterranean diet.

These constituents include compounds from the unsaponifiable fraction such as squalene, tocopherols and sterols. The other fraction contains the polar phenolic products which includes many interesting bioactive components. The book is mainly about the latter which contain well known phenolics such as hydroxytyrosol, tyrosol, oleuropein and oleocanthal.

The first chapter, by the editor, sets the scene with an introduction that certainly gets your attention. On page two we are informed that the term "polyphenol" is inaccurate and confusing as only several of the polar components in olives can be described as true polyphenols. These are chemical compounds with two benzene rings joined by a linear 3 carbon chain. No matter, I am sure that everyone will continue to call the range of compounds "polyphenols" just like calling most natural antioxidants as such is not always technically correct.

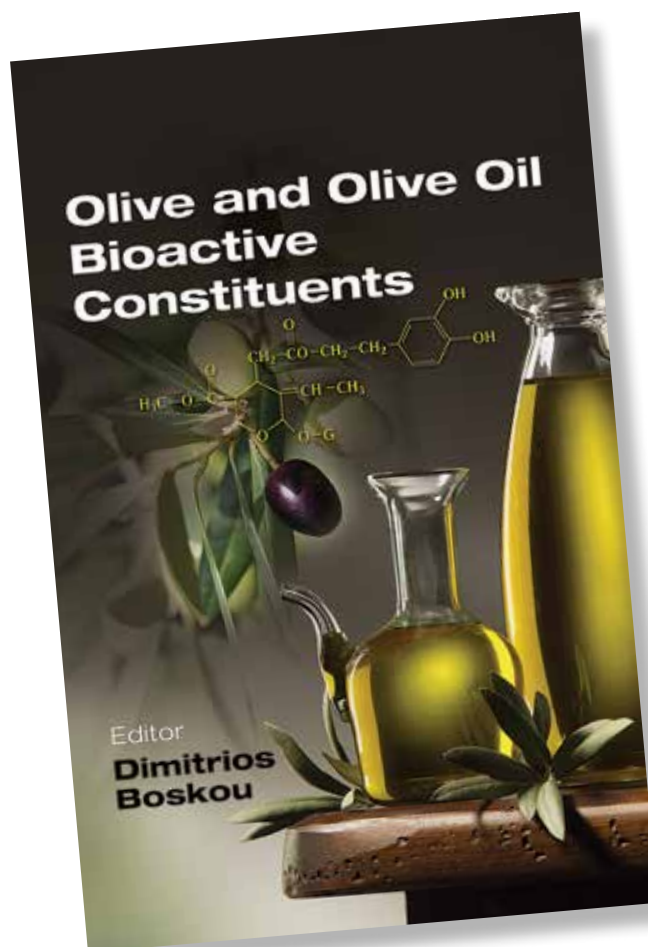
Two chapters deal with the clinical and cellular mechanisms and health effects. These chapters are most important for the field of functional foods and health claims. Bioavailability of the phenolic compounds has been a contentious issue in the past but several authors from a prestigious nutritional research centre in Spain report that tyrosine and hydroxyl tyrosine, the main phenolics in olive oil, accumulate in the body after moderate doses of the oil even at lower levels than those consumed in the Mediterranean countries.

An in depth discussion of the EUROLIVE study is presented where consumption of medium and high phenolic content olive oil decreased lipid oxidative damage biomarkers such as plasma-oxidised LDL. The most important observation is that the increase in HDL cholesterol and the decrease in lipid oxidative damage had a linear relationship with the phenolic content of the olive oil consumed.

The book presents a great deal of detail concerning the claimed benefits of olive oil and discusses the permitted health claim to EFSA on oils that contain natural phenolics concentrations greater than 250 ppm.

Processing gets a balanced viewpoint, looking at the major parameters influencing the optimal levels of the bioactives in olive oil during malaxing.

Several authors cover this topic well despite the lack of input from the process engineering companies. Recovery of bioactive constituents



from olive waste is comprehensively described. This area is a vitally important environmental issue as well as potential for enhanced revenue.

The flavour of Extra Virgin olive oil is one of the most important attributes as well as being a quality indicator. The relationship between phenolic levels and sensory is well explored in the book with a description of the particular compound, deacetoxy-ligstroside-aglycon (p-HPEA-EDA) which causes the strong burning sensation in the back of the throat. Virgin Oils are classified into mild, medium and intense/robust. Robust virgin olive oils tend to have a total phenol count above 300 ppm.

Analysis gets a good coverage in several chapters and this is a growing area of complexity particularly as there is such a variety of polar compounds in both olives and olive oil. These chapters are very detailed and will be of most use to analytical chemists and researchers in natural product composition.

Scientific papers on health historically have focussed on the oil but table olives are a popular and nutritious foodstuff if prepared correctly. This topic is covered thoroughly in the book. Topics covered include harvesting, effects of climate, variety, soil, processing and the resultant concentration of phenolics with relation to sensory.

In conclusion this book contains a wealth of data and useful information around the topic of the chemistry and health properties of olive bioactives, which will be of current relevance to nutritionists, scientists and technologists in the natural products areas. Boutique producers and marketers of olive oil will need this background, detailed science for the arena of functional foods and health claims.

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