



OLIVES AND
OLIVE OIL
IN HEALTH
AND DISEASE
PREVENTION

EDITED BY
Victor R. Preedy
Wynne Roes Watson



About the book

Description

Long used in sacred ceremonies and associated with good health, the nutritional and health promoting benefits of olives and olive oils have been proven by an ever-increasing body of science. From cardiovascular benefits to anti-microbial, anti-cancer, antioxidant activity and effects on macrophages

[Show more](#) ✓

Key Features

Key Features: * Explores olives and olive oil from their general aspects to the detailed level of important micro- and micronutrients * Includes coverage of various methodologies for analysis to help scientists and chemists determine the most appropriate option for their own studies, including those of olive-

[Show more](#) ✓

Details

Editors

ISBN

978-0-12-374420-3

Language

English

Published

2010

Victor R. Preedy

Dept Nutrition and Dietetics, Nutritional Sciences Division, School of Biomedical & Health Sciences, King's College London, Franklin-Wilkins Building, London, UK

Ronald Ross Watson

University of Arizona, Division of Health Promotion Sciences, Mel and Enid Zuckerman College of Public Health, and School of Medicine, Arizona Health Sciences Center, Tucson, AZ, USA

Copyright

Copyright © 2010 Elsevier Inc. All rights reserved

Imprint

Academic Press

No. of pages

1520

You currently don't have access to this book, however you can purchase separate chapters directly from the table of contents or buy the full version.



Access through your institution

 Get Access

Olives and Olive Oil in Health and Disease Prevention

2010, Pages 69-76

Chapter 8 - Influence of the Crushing System: Phenol Content in Virgin Olive Oil Produced from Whole and De-stoned Pastes

Paolo Amirante ¹, Maria Lisa Clodoveo ¹, Antonia Tamborrino ¹, Alessandro Leone ², Alistair G. Paice ³

Show more 



Outline



Share



Cite

<https://doi.org/10.1016/B978-0-12-374420-3.00008-5>

[Get rights and content](#)

Publisher Summary

The mechanical processes used to extract **virgin olive oil** from olive fruit include the crushing of the olives, malaxation of resulting pastes and separation of the oily phase essentially by pressure or **centrifugation**. All these operations affect the quality of virgin olive oil. Olive paste preparation is the most important phase of the process when oil is mechanically extracted from the olives. The use of differing machines in olive oil production has inevitable repercussions on the **cost-effectiveness** of the oil-making process, on the amounts of oil extracted and especially on the quality of the oil obtained. In order to obtain the best virgin olive oil, quality olives must be processed as quickly as possible after harvesting from the trees. Normally they should be delivered to the mill within a day or so of picking, in order to keep down oxidation and acidity. When extracting oil from olives, it is very important to clean them properly first, in order to ensure the levels of hygiene required for a high-quality olive oil product. Once cleaned, the olives must be crushed, in order to make the olive paste that itself is the first stage in extracting the oil. How this is done is crucial for both the quantity and the quality of the olive oil product. Mechanical oil extraction from de-stoned pastes can improve the oil phenolic concentration. The quality characteristics of virgin o

FEEDBACK 

depend on [oxidative enzyme](#) reactions that take place in olive paste during the extraction process. Two enzymes, [polyphenol oxidase \(PPO\)](#) and [peroxidase \(POD\)](#), are highly concentrated in the olive kernel. PPO and POD can oxidize [phenolic compounds](#) resulting in a reduced phenolic concentration of oil. The de-stoning process, excluding the olive seed before malaxation, partially removes the peroxidase activity in the pastes. This results in an increase in oxidative stability and [nutritional value](#) of virgin olive oil.

[< Previous](#)[Next >](#)[Recommended articles](#)[Citing articles \(25\)](#)

Copyright © 2010 Elsevier Inc. All rights reserved.

[About ScienceDirect](#)[Remote access](#)[Shopping cart](#)[Advertise](#)[Contact and support](#)[Terms and conditions](#)[Privacy policy](#)

We use cookies to help provide and enhance our service and tailor content and ads. By continuing you agree to the **use of cookies**.

Copyright © 2021 Elsevier B.V. or its licensors or contributors. ScienceDirect® is a registered trademark of Elsevier B.V.

ScienceDirect® is a registered trademark of Elsevier B.V.





Access through your institution

 Get Access

Olives and Olive Oil in Health and Disease Prevention

2010, Pages 77-83

Chapter 9 - The Malaxation Process: Influence on Olive Oil Quality and the Effect of the Control of Oxygen Concentration in Virgin Olive Oil

Antonia Tamborrino ¹, Maria Lisa Clodoveo ¹, Alessandro Leone ², Paolo Amirante ¹, Alistair G. Paice ³Show more  Outline |  Share  Cite<https://doi.org/10.1016/B978-0-12-374420-3.00009-7>[Get rights and content](#)

Publisher Summary

Malaxing is an extremely important phase in olive oil extraction. During the malaxing phase the olive paste is subjected to a slow continuous kneading, aimed at breaking off the **emulsions** formed during the crushing process and facilitating adequate coalescence. It is necessary to heat the olive paste at a carefully monitored temperature during malaxation in order to diminish the viscosity of the product and to stimulate its enzymic activity, therefore increasing the extraction yields. This operation facilitates high extraction yields, by helping small oil droplets to coalesce. These can be separated subsequently using a decanter centrifuge. The malaxing process determines the balance between the quality and the quantity of the oil extracted, by varying a range of parameters (time, temperature, and atmosphere in contact with the olive paste), as the olive paste is gradually heated and the enzymes within are activated. All this must be done without affecting the biochemical structure of the olive paste, as this would affect the flavor, shelf-life and nutritional properties of the oil. This operation is one of the critical points in olive oil extraction. Many studies have been carried out to investigate its influence on the olive oil quality. Nowadays the olive oil consumer asks for healthy products. There has been a large increase in demand for high-quality

FEEDBACK 



Access through your institution

 Get Access

Olives and Olive Oil in Health and Disease Prevention

2010, Pages 85-93

Chapter 10 - Influence of Different Centrifugal Extraction Systems on Antioxidant Content and Stability of Virgin Olive Oil

Paolo Amirante¹, Maria Lisa Clodoveo¹, Alessandro Leone², Antonia Tamborrino¹, Vinood B. Patel³

Show more 

 Outline |  Share  Cite

<https://doi.org/10.1016/B978-0-12-374420-3.00010-3>

[Get rights and content](#)

Publisher Summary

The different centrifugal decanters employed in olive processing influence oil yields, qualitative characteristics such as total phenols and induction time values, and composition of **volatile compounds** such as **aldehydes**, alcohols, esters, **hydrocarbons**, **ketones**, **furans**, and other compounds that are responsible for the unique and delicate flavor of olive oil. Total phenols as well as induction time values are higher in oils obtained by the centrifugal decanter of two phases. The induction time is the length of time before the rate of lipid oxidation of an oil sample rapidly accelerates. The induction time of olive oil samples, as measured by the Rancimat instrument, showed a significant correlation to the concentration of total **phenolic compounds**. Dual-phase decanters work on the same principle as the three-phase decanters, except little or no water is added prior to **centrifugation**. This allows the retention of more **polyphenols** and volatiles. The “third-generation” three-phase decanters allow for the improvement of oil yields without compromising the quality of the product. This is the best solution with respect to the two-phase decanters because it is possible to extract the oil without adding water to the process, thus obtaining dry pomace, which is more easily transportable and workable.

FEEDBACK 

attributed not only to its potential health benefits, but also to its particular [organoleptic properties](#). In fact, the [sensory quality](#) plays an important role in customer preferences. The operating environment during malaxation affects the volatile and phenolic composition of virgin olive oil and, as a consequence, its sensory and healthy qualities.

[< Previous](#)

[Next >](#)

[Recommended articles](#)

[Citing articles \(12\)](#)

Copyright © 2010 Elsevier Inc. All rights reserved.



[About ScienceDirect](#)

[Remote access](#)

[Shopping cart](#)

[Advertise](#)

[Contact and support](#)

[Terms and conditions](#)

[Privacy policy](#)

We use cookies to help provide and enhance our service and tailor content and ads. By continuing you agree to the **use of cookies**.
Copyright © 2021 Elsevier B.V. or its licensors or contributors. ScienceDirect® is a registered trademark of Elsevier B.V.
ScienceDirect® is a registered trademark of Elsevier B.V.



FEEDBACK