



**FoodOxys**



**olea fortius**  
Naturally Powerful Olive Polyphenols

# Unravelling the bioactivity of olive oil side-stream products – Where we stand ?

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Toxicologist

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**FoodOxys**



## About us

FoodOxys is a spin-off company of the University Of Thessaly, founded in 2019 by a core team of bioscientists

## Mission statement

To provide state-of-the-art services for ensuring nutritional wellness at a personalized level and testing the bioactivity of food products and dietary supplements



**Fotios Tekos, PhD**

Chief Executive Officer



**Zoi Skaperda, PhD**

Chief Scientific Officer



**Periklis Vardakas, MSc**

Chief Strategy Officer



**Maria Nechalioti, MSc**

Chief Operational Officer

# WHY

To enhance animal welfare by increasing the quality and nutrient content of animal feed, ultimately benefiting the entire food chain.

# HOW

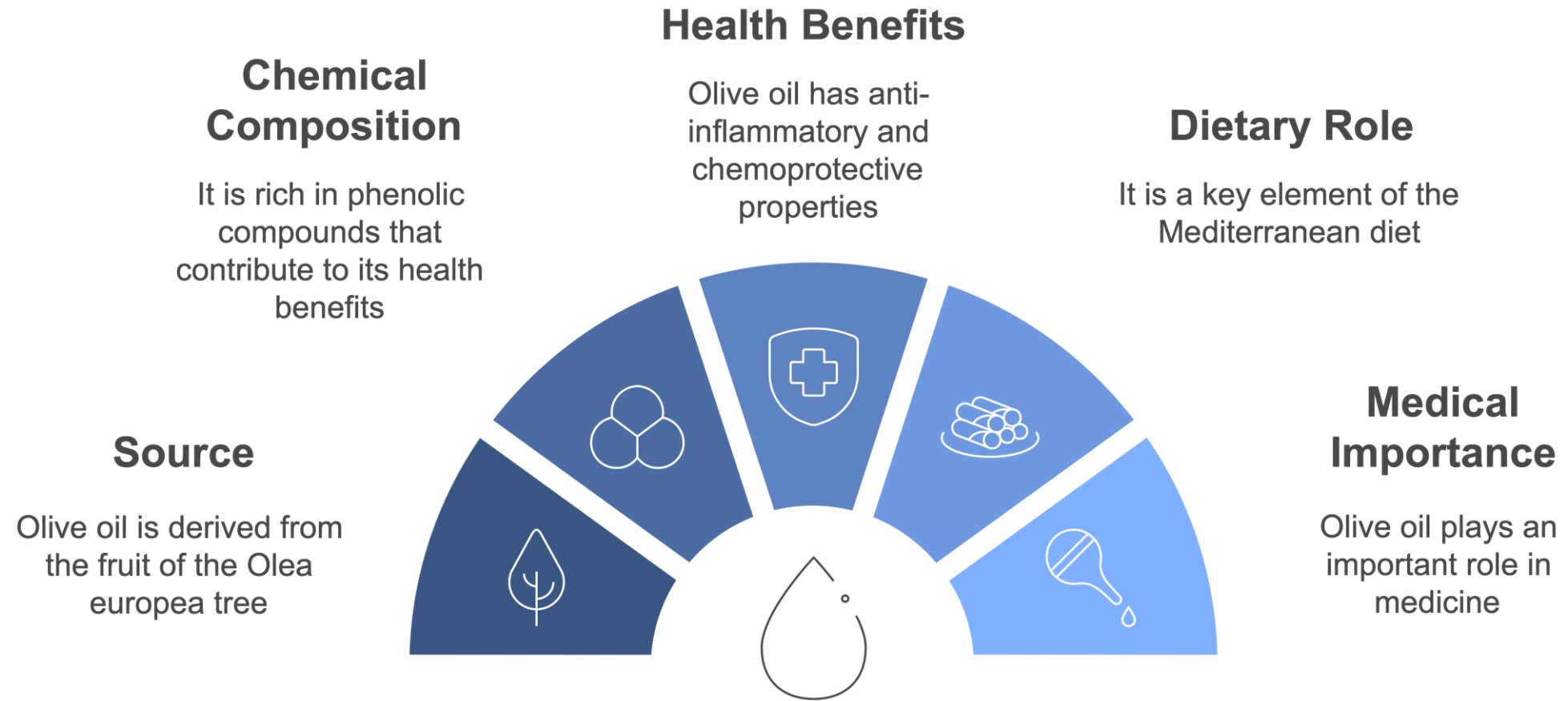
By offering a zero-waste product that benefits humans, animals, and the environment.

# WHAT

**OLIVE SOLUBLE** a highly phenolic feed material produced from **olive oil** waste.



# Olive oil (OO) properties and nutritional benefits



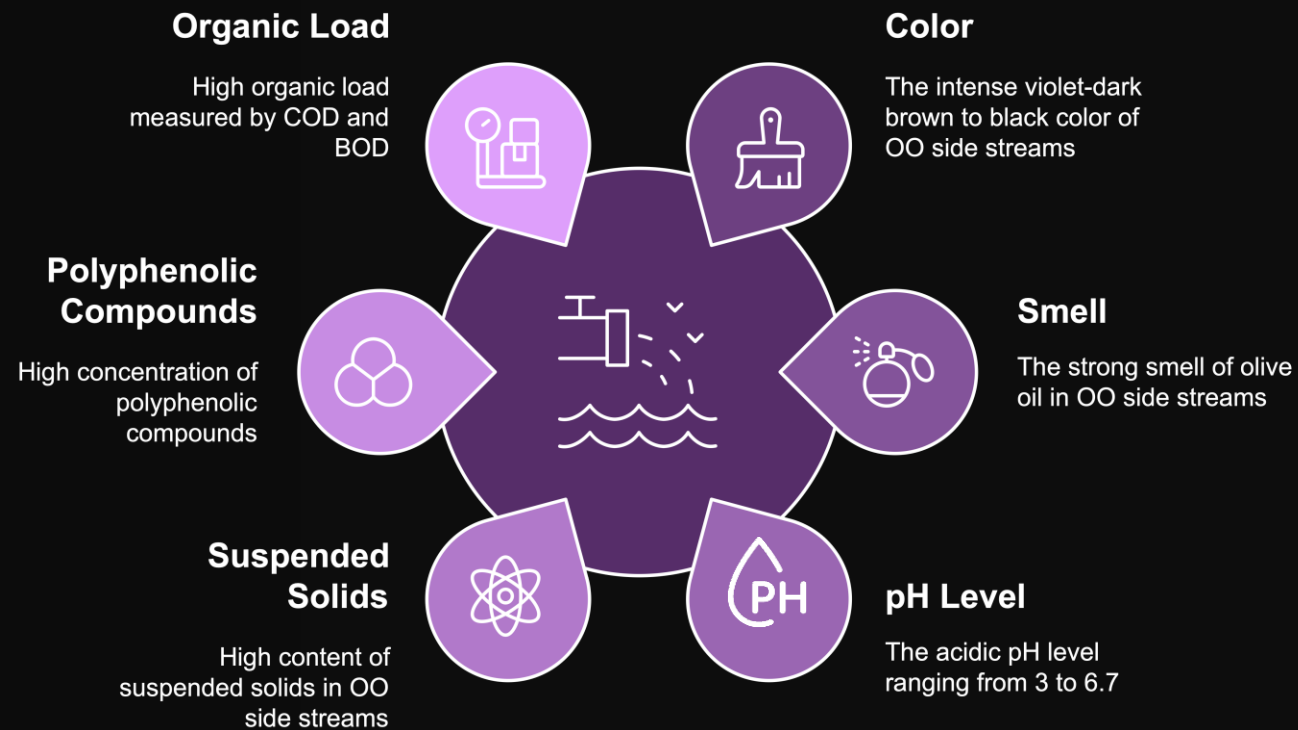


# OO production and side streams

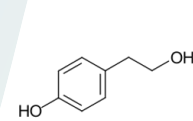
## Breakdown of Olive Oil Side Streams



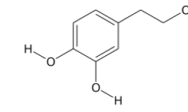
# The environmental impact of OO side streams



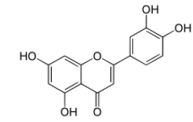
# OO side streams are particularly rich in bioactive compounds



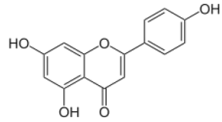
Tyrosol



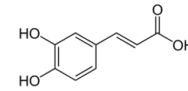
Hydroxytyrosol



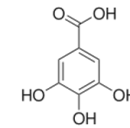
Luteolin



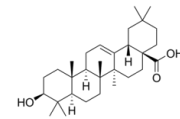
Apigenin



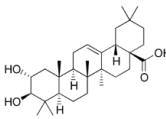
Caffeic acid



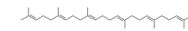
Gallic acid



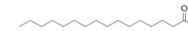
Oleanoic acid



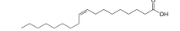
Maslinic acid



Squalene



Palmitic acid



Oleic acid



Linoleic acid

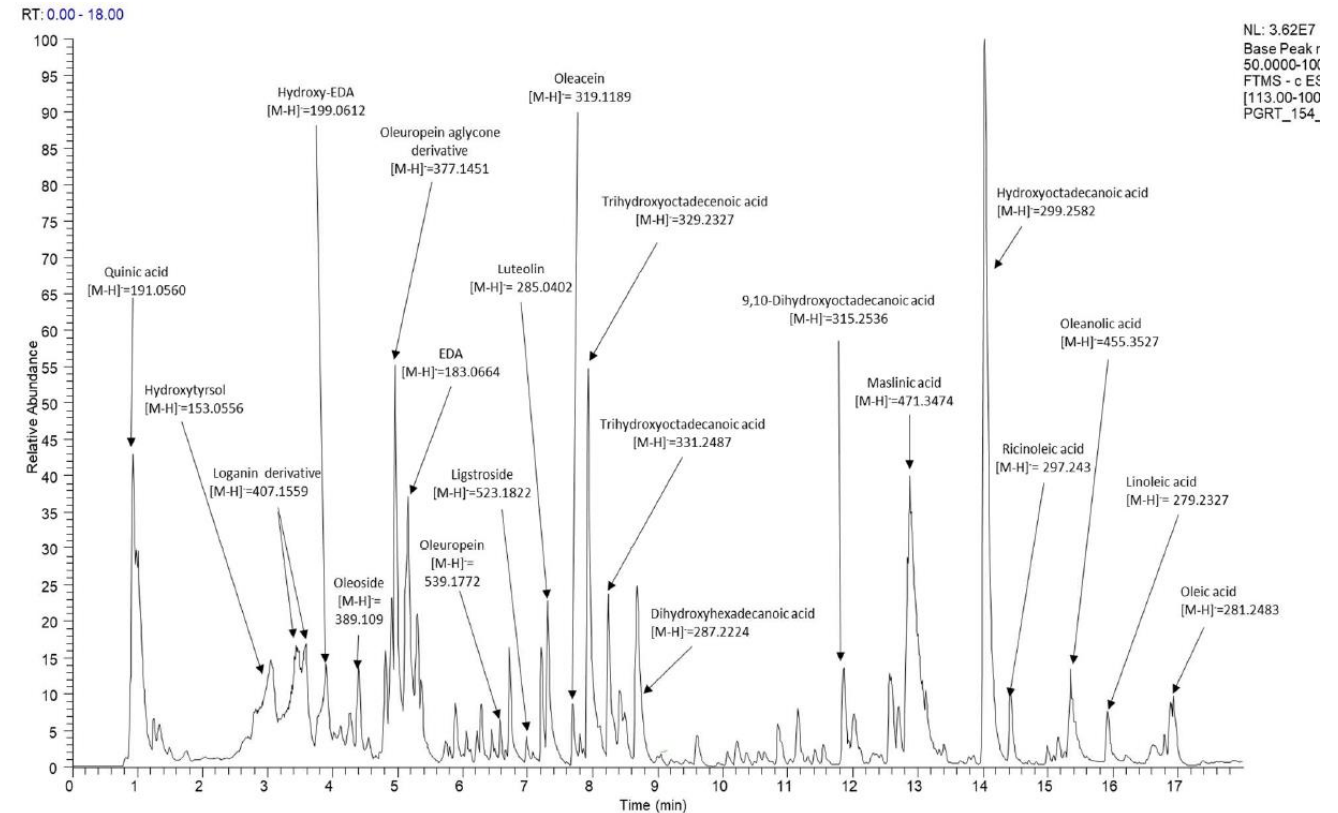
# **Unravelling the biological properties**



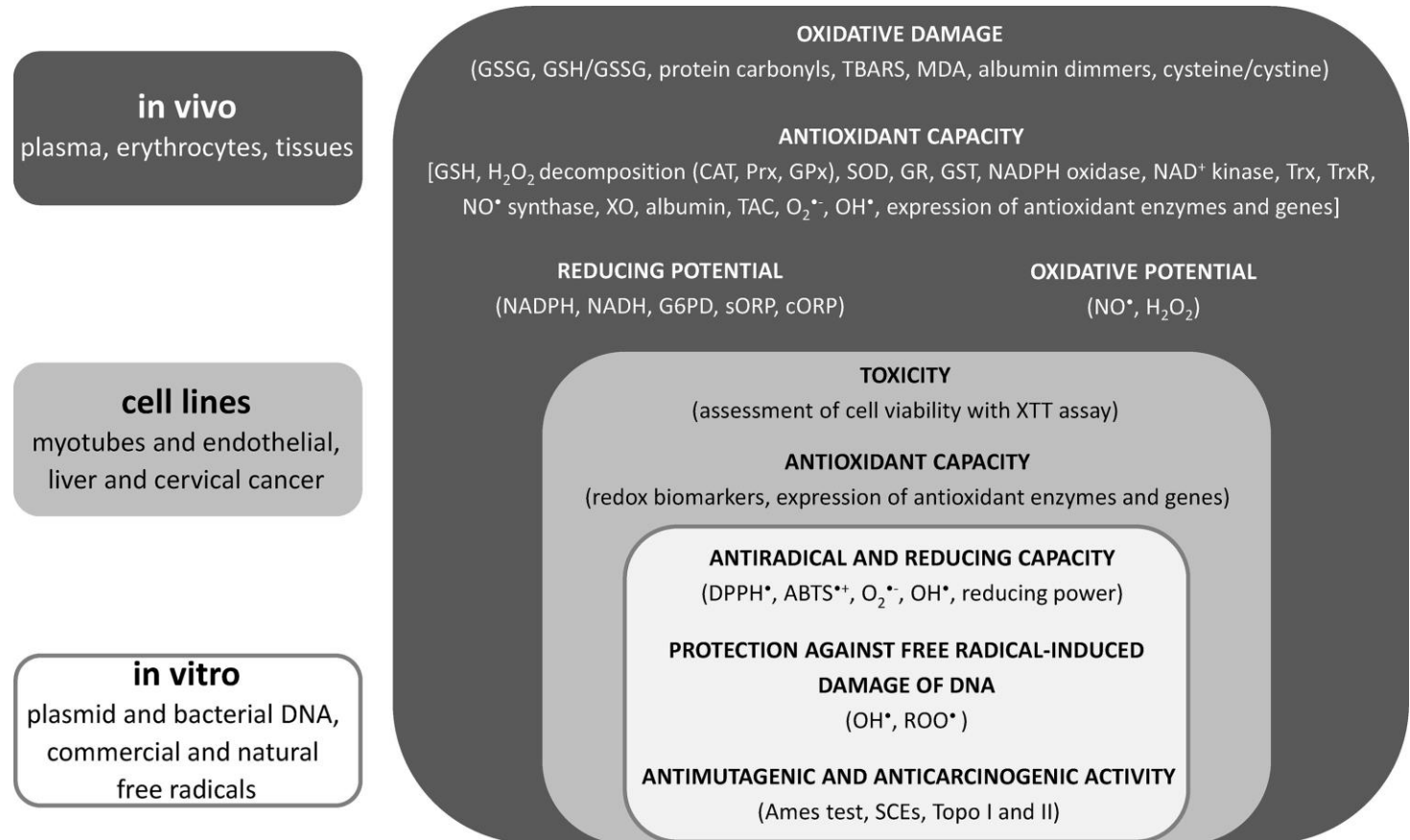


# Characterization of bioactive compounds

Qualitative and quantitative characterization of bioactive compounds via liquid chromatography-mass spectrometry/mass spectrometry (LC-MS/MS) system



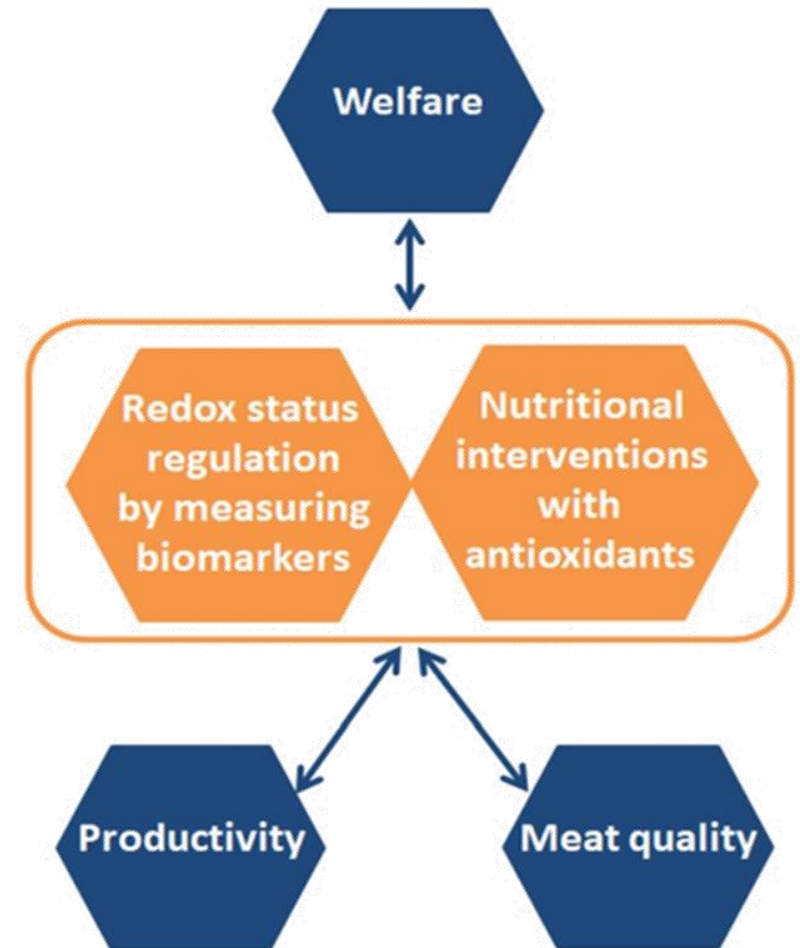
# Evaluation of bioactivity at different levels of complexity



# Redox status in animal welfare and productivity

## Assessment of animal redox status to evaluate

- Animal performance
- Quality of Life
- Heat Stress
- Immunity status post-vaccination
- Meat Quality
- Egg Quality
- Milk Quality



# Supplementation of lamb feed with Olive Oil side-stream products

➤ [In Vivo](#). 2018 Mar-Apr;32(2):291-302. doi: 10.21873/invivo.11237.

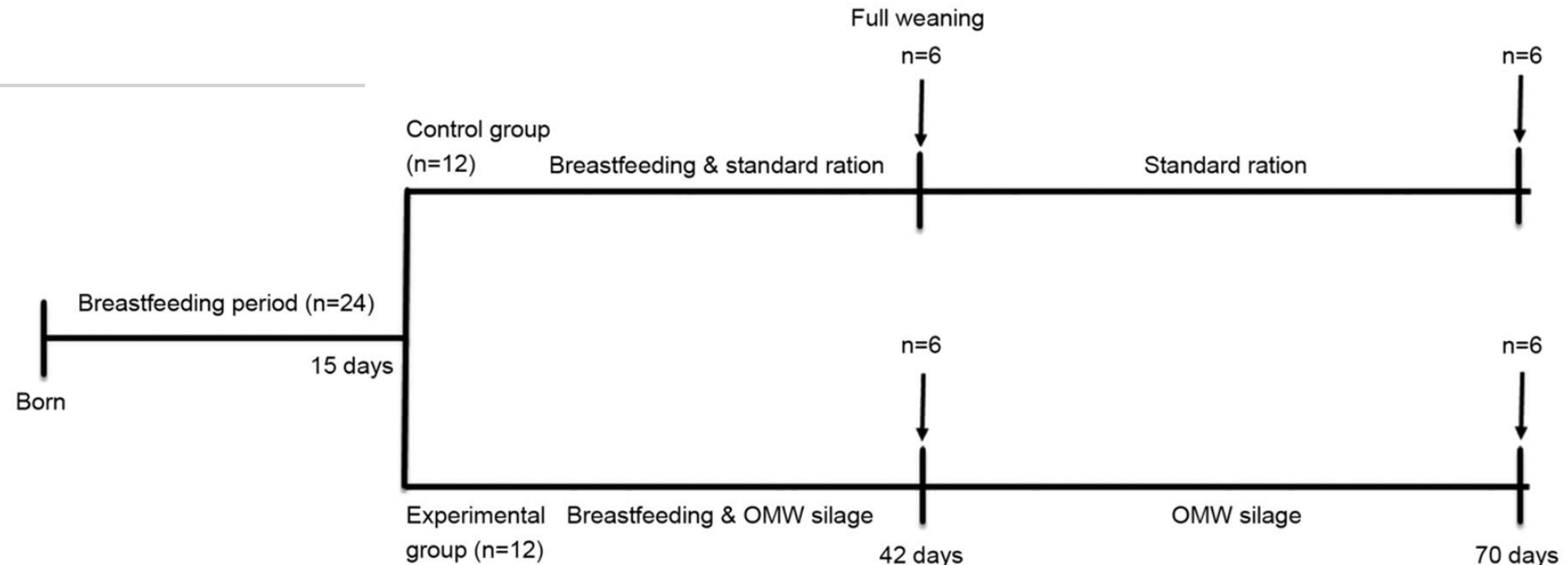
## Novel Feed Including Olive Oil Mill Wastewater Bioactive Compounds Enhanced the Redox Status of Lambs

Sotiria Makri <sup>1</sup>, Ioannis Kafantaris <sup>1</sup>, Salomi Savva <sup>1</sup>, Polyxeni Ntanou <sup>1 2</sup>, Dimitrios Stagos <sup>1</sup>, Ioannis Argyroulis <sup>1</sup>, Basiliki Kotsampasi <sup>3</sup>, Vladimiro Christodoulou <sup>3</sup>, Konstantinos Gerasopoulos <sup>1 4</sup>, Konstantinos Petrotos <sup>4</sup>, Dimitrios Komiotis <sup>1</sup>, Demetrios Kouretas <sup>5</sup>

Affiliations + expand

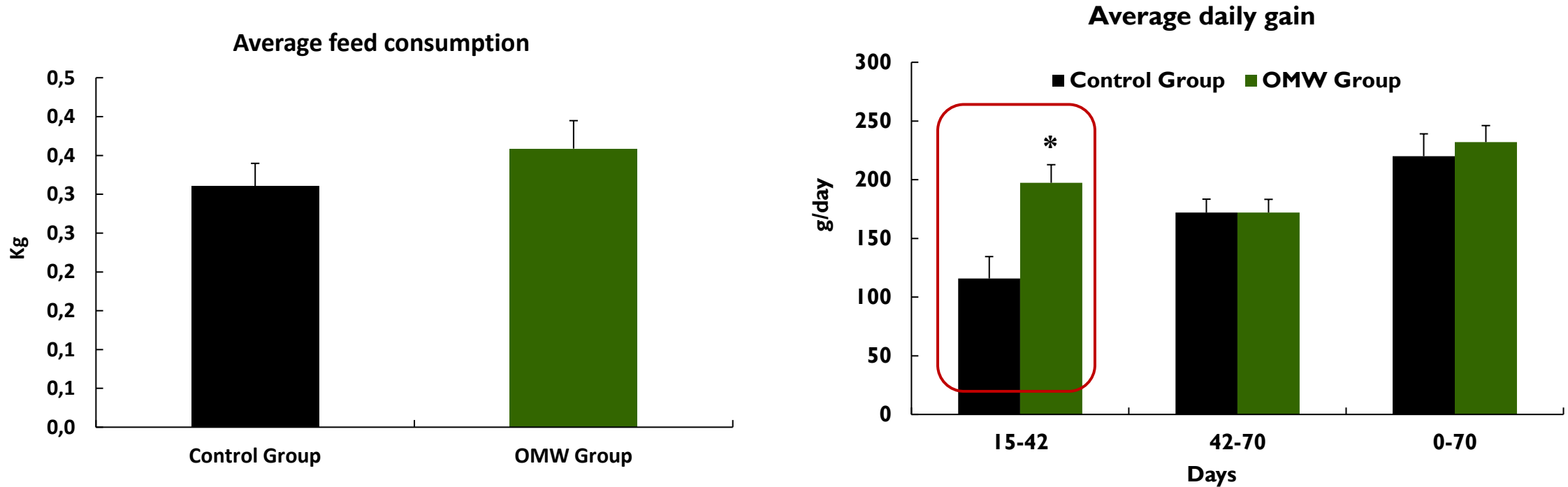
PMID: 29475912 PMCID: [PMC5905197](#) DOI: [10.21873/invivo.11237](#)

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# Feed supplemented with Olive Oil side-stream products increased the bodyweight gain



\* Statistically significant difference compared to the control group (significance level  $p < 0.05$ )

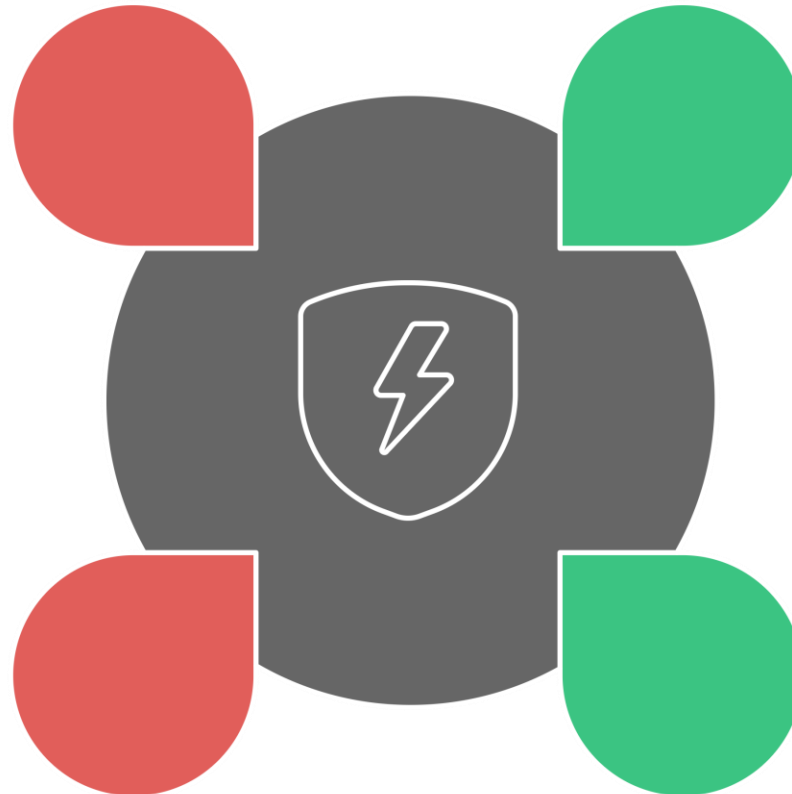
# Feed supplemented with Olive Oil side-stream products enhanced redox status

## PCARBS Levels

Lower protein carbonyls  
signifying reduced  
protein damage

## TBARS Levels

Lower thiobarbituric acid  
reactive substances  
indicating less lipid  
oxidation



## GSH Levels

Increased glutathione  
levels providing cellular  
protection

## TAC Levels

Increased total  
antioxidant capacity  
enhancing antioxidant  
defense

# REFERENCES

➤ [In Vivo](#). 2018 Mar-Apr;32(2):291-302. doi: 10.21873/invivo.11237.

## Novel Feed Including Olive Oil Mill Wastewater Bioactive Compounds Enhanced the Redox Status of Lambs

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Affiliations + expand

PMID: 29475912 PMCID: PMC5905197 DOI: 10.21873/invivo.11237

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➤ [Food Chem Toxicol](#). 2015 Aug;82:42-9. doi: 10.1016/j.fct.2015.04.021. Epub 2015 Apr 24.

## Feed supplemented with byproducts from olive oil mill wastewater processing increases antioxidant capacity in broiler chickens

Konstantinos Gerasopoulos <sup>1</sup>, Dimitrios Stagos <sup>2</sup>, Stylianos Kokkas <sup>3</sup>, Konstantinos Petrotos <sup>4</sup>, Dimitrios Kantas <sup>3</sup>, Panagiotis Goulas <sup>3</sup>, Dimitrios Kouretas <sup>5</sup>

Affiliations + expand

PMID: 25916917 DOI: 10.1016/j.fct.2015.04.021

➤ [In Vivo](#). 2020 Jul-Aug;34(4):1811-1821. doi: 10.21873/invivo.11976.

## Biofunctional Feed Supplemented With By-products of Olive Oil Production Improves Tissue Antioxidant Profile of Lambs

Sotiria Makri <sup>1</sup>, Sofia Raftopoulou <sup>1</sup>, Ioannis Kafantaris <sup>1</sup>, Basiliki Kotsampasi <sup>2</sup>, Vladimiros Christodoulou <sup>2</sup>, Charitini Nepka <sup>3</sup>, Aristidis S Veskoukis <sup>1</sup>, Demetrios Kouretas <sup>4</sup>

Affiliations + expand

PMID: 32606151 PMCID: PMC7439886 DOI: 10.21873/invivo.11976

[Free PMC article](#)

➤ [Food Chem Toxicol](#). 2015 Dec;86:319-27. doi: 10.1016/j.fct.2015.11.007. Epub 2015 Nov 10.

## Feed supplemented with polyphenolic byproduct from olive mill wastewater processing improves the redox status in blood and tissues of piglets

Konstantinos Gerasopoulos <sup>1</sup>, Dimitrios Stagos <sup>2</sup>, Konstantinos Petrotos <sup>3</sup>, Stylianos Kokkas <sup>3</sup>, Dimitrios Kantas <sup>3</sup>, Panagiotis Goulas <sup>3</sup>, Dimitrios Kouretas <sup>4</sup>

Affiliations + expand

PMID: 26561741 DOI: 10.1016/j.fct.2015.11.007



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Your product **Olive Soluble** is registered in the Feed materials register with **009358-EN** .

Please note that this message should not be regarded as an acknowledgment of the feed material status of your product. We reserve the right to remove your notification from the register under the conditions specified in the guide to the notifier.





## 100% Natural

The high phenolic feed material is produced from by-products of the olive oil industry.

**Phenolic / bioactive antioxidants > 14%**



## Environmentally Sustainable

The process of olive oil production is accompanied by the generation of huge amounts of by-products with a high pollution load. **OLEA FORTIUS** provides an eco-friendly management of these polyphenol-rich by-products using them for the production of **OLIVE SOLUBLE**.



## Powerful

The phenolic compounds present in **OLIVE SOLUBLE** possess strong biological activities including, antioxidant, anti-inflammatory, antimicrobial properties.



## Animal welfare

Previous studies have reported that **OLIVE SOLUBLE** improves metabolic biomarkers associated with redox status, thus promoting animal health and welfare.

# Certificates





# Thank you very much for your attention !

**Dr. Fotios Tekos**

**Let's build something  
together:**

