



OIL STRUCTURING FOR IMPROVING HEALTHY AND SUSTAINABLE DIETS

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Background



The **DEVELOPMENT OF A SUSTAINABLE FOOD SYSTEM** is the biggest challenge of the modern food industry, promoted by the *European Green Deal*¹.



In this context an approach could be the development of strategies for a **SUSTAINABLE FOOD CONSUMPTION** favouring the transition to healthier and more sustainable diets.



OBESITY AND OVERWEIGHT have reached **CRITICAL LEVELS** increasing life-threatening diseases, such as **CARDIOVASCULAR DISEASE**^{1,2}.

THERE IS THE NEED

TO
IMPROVE



NUTRITIONAL PROFILE of lipid-containing foods³

Through



OLEOGELATION^{4,5}



Liquid oil

+



Gelator

=



Objectives

Studying and proposing novel
OLEOGELATION STRATEGIES
to steer

Oleogel
TECHNOLOGICAL and **HEALTH**
functionalities

PhD. AIM

EXPERIMENTAL APPROACH

To study

MACRO-MICRO-NANO STRUCTURE

TECHNOLOGICAL FUNCTIONALITIES

HEALTH FUNCTIONALITIES

Validation through the application of oleogels in

FOOD PROTOTYPES

Expected Activities

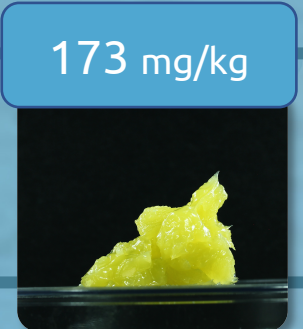
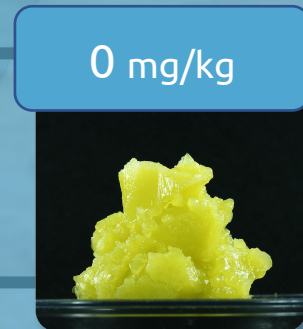
Activity	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A0) Literature review																									
A1) Innovative strategies for oil structuring																									
• Different types of gelators																									
• Multiple procedures																									
A2) Effect of micro-components																									
A3) Digestibility																									
• Modulation of caloric intake																									
• Ability to improve bioaccessibility of bioactive molecules																									
A4) Food prototypes																									
A5) Papers writing and thesis development																									

Preliminary Results

OLEOGELATION of Extra Virgin Olive Oil (EVOO) - Effect of Polyphenol Content

EVOO with increasing **Polyphenol (PP) content** [mg/kg] (selective removal of PP)

Gelator (10% w/w) Saturated Monoglycerides (C16-C18)



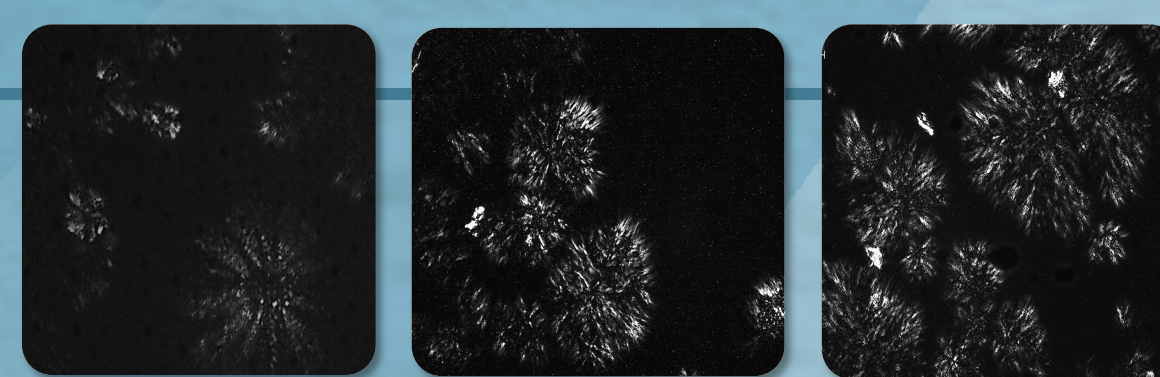
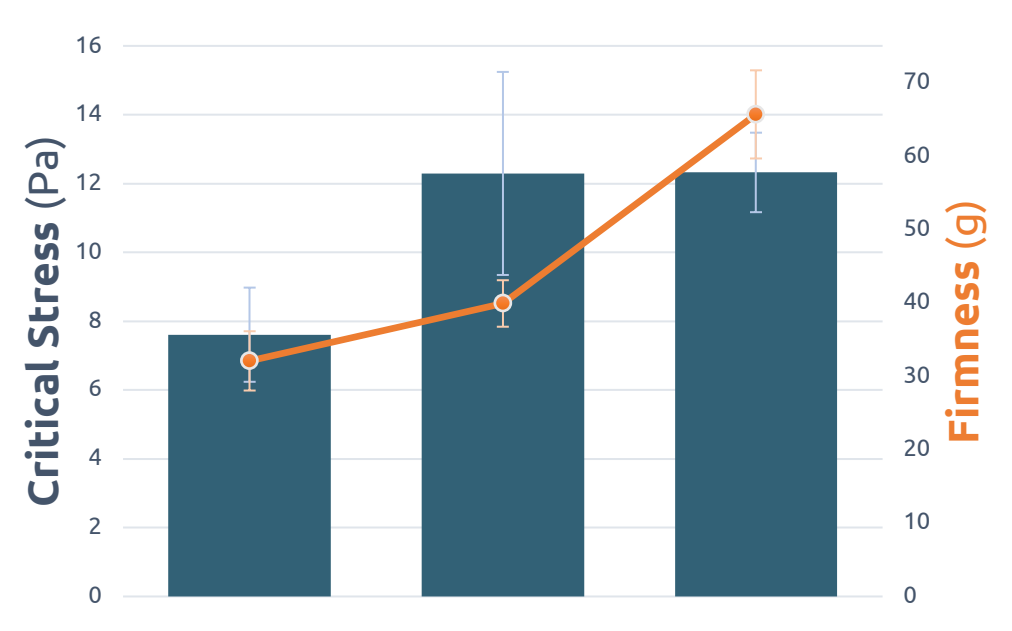
Macroscopic Appearance

Rheological Behavior

Mechanical Behavior

Microscopic Appearance

Analytical Determination



Conclusions

Polyphenol content in EVOO has a great impact on **oleogel structure**.

Micro-components could modify monoglycerides **crystals-crystals** and **oil-crystals** interactions. Further investigations are under development to study the effect of oleogel structure on **lipid digestion** and **polyphenol bioaccessibility**.

References

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Palermo 14/15 Settembre

