



26.04.2024

Dear Editors-in-Chief,

We would like to re-submit the research article entitled „Grape seed oil structural changes and phenolics dynamics as influenced by oleogelation and emulsification as processing conditions” for publication in Journal of Food Science and Technology.

In the current study, shellac wax was used both as a structuring agent and emulsifier for forming grape seed oil (cold pressed –CP or refined –RE) oleogels and emulsions due to its property of forming supramolecular interactions and self-assembled colloidal structures (Patel, Schatteman et al., 2013). Moreover, shellac wax is GRAS, has an approved status for food (E904), is a sustainable and cost-effective source, and is efficient in low concentrations (Patel, 2018). One of the novelties of the study is that it depicts the behavior of emulsion oleogels developed from two types of grape seed oils, CP and RE. Besides monitoring the structural changes of CP and RE grape seed oil due to the oleogelation and emulsification processes, the present study aimed to determine the dynamics of the phenolic compound. Oleogelation is a technique recently used for replacing trans and saturated fats in foods (Hwang, 2020), which implies that vegetable oils are trapped in a three-dimensional grid due to an oleogelator and the resulting system has a solid structure (Manzoor et al., 2022).

Because the hydrophobicity of oils and therefore oleogels limits some of their potential uses, particularly in water-rich environments, oleogel emulsification is now being investigated as the following strategy in building low-fat and nutritionally superior food.

Rheological, textural, microscopy, colorimetry, and stability analysis were conducted. The FT-IR spectra were acquired to monitor the composition of the samples, including phenolics dynamics. In the last years, our research group from the Laboratory of Food Process and Structure Engineering, headed by prof. PhD Vlad Mureșan, was focused also on innovative techniques of oil structuring, with different food uses, our latest work, a review, is revisiting the current state of knowledge in terms of oxidative stability and bioactive compounds delivery potential of these structures (DOI: 10.1080/10408398.2023.2207206), published in Crit Rev Food Sci Nutr.

Other previous works related to the oleogelation process (<https://doi.org/10.3390/polym13121934>), (<https://doi.org/10.3390/pr8111412>) „Cold pressed pumpkin seed oil fatty acids, carotenoids, volatile compounds profiles and infrared fingerprints as affected by storage time and wax based oleogelation ”, Pușcaș et al.) published in The Journal of the Science of Food and Agriculture □ 2020 review paper “Oleogels in Food: A Review of Current and Potential Applications” Pușcaș et al. Foods 2020, 9(1), 70, <https://doi.org/10.3390/foods9010070> (already 145 times cited) □ Feasibility of Shellac Wax Emulsion Oleogels as Low-Fat Spreads Analyzed by Means of Multidimensional Statistical Analysis, Gels 2022, 8, 749. <https://doi.org/10.3390/gels8110749> □ 2018 Chemistry and Physics of Lipids Poster Prize (Link) - presented during the 16th Euro Fed Lipid Congress, 16-19 September 2018, Belfast, UK. Enhancing the Unsaturated Fat Content and TechnoFunctional



Properties of Whipped Creams by Designing New Structured Fats – Blends of Rice Bran Wax Oleogel and Butter as Fat Model Systems, Gels 2022, 8, 613. <https://doi.org/10.3390/gels8100613> www.mdpi.com/journal/gels, The research Article entitled Walnut Oil Oleogels as Milk Fat Replacing System for Commercially Available Chocolate Butter, etc.

The current manuscript totalizes under 6000 words from the introduction till the end of the conclusion sections, including Tables and Color Figures. The number of figures+Tables is 6 . We confirm that neither the manuscript nor any parts of its content are currently under consideration or published in another journal.

We consider the manuscript is within the scope of the Journal, since we identified the interest of the Journal in research which provides information on reduction of saturated or trans-fatty-acid levels in the foods, but also oils and oil based systems rich in bioactive compounds. The journal focus is on applied research findings that will impact the quality, safety and/or shelf life of fresh or processed food products including findings that will help improvise the efficiency of a process/technology, effective utilization of by-products or wastes resulting from food processing operations. Also, other research published within this journal reached a high acces number and citations (1209 Accesses for <https://doi.org/10.1007/s13197-021-04970-4>)

Also, I, Puscas Andreea, I am aware that if our manuscript is accepted for publication I shall review at least three manuscripts (in my own specialization) submitted to JFST.

Yours sincerely,

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