



## OC01 - 24991 - PRODUCTION OF OLIVE OIL ORGANOGELS: INFLUENCE OF BEESWAX CONCENTRATION ON PHYSICOCHEMICAL PROPERTIES

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### Abstract

Edible oils have potential health benefits in comparison to saturated and/or trans fats employed in food products. Conferring structure to these oils allows a greater range of applications, improving its applicability, such as spreadable products. The aim of this work was developing an olive oil organogel, foreseeing its application in the food industry.

Olive oil and beeswax (BW) as organogelator (1% to 6% (w/w)) were used for the production of the organogels, solubilized at 90 °C and cooled to room temperature. Systems were evaluated for their oxidation stability through peroxide values (PV), mechanical and rheological (flow curves and non-isothermal oscillatory sweeps) and thermal (DSC) properties. Olive oil and commercial butter were used as controls.

Results showed that an increase in BW concentration increased the textural parameters. Compared to values of commercial butter, organogels values were lower, indicating a less structured organogel (highest values: firmness 4.99 N and 17.76 N; spreadability 3.87 N/sec and 18.98 N/sec for organogel and butter respectively). Rheological and DSC results showed an increase in all parameters evaluated (thixotropy, initial viscosity, onset temperature, enthalpy) with BW concentration increase. Melting point of organogels was also determined by non-isothermal rheology and compared with DSC results. There was a similar trend with increasing concentration, however, a gap was observed since different mechanisms are involved. Oxidative stability was assessed (63 days), and results showed that, while an increase with time exists, it is within normal values (maximum PV value (63 days) of 1.43 milliequivalents/kg), and all organogel samples were below pure olive oil.

In short, results showed that by changing the concentration of gelator, physicochemical properties can be easily changed and tailored, possibly creating a wide range of products. Thus, an industrial application can be easily projected, since olive oil is a healthier alternative to commercial butter and other spreadable products.



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