

# Impact of Polymorphism in Oleogels of *N*-Palmitoyl-*L*-phenylalanine

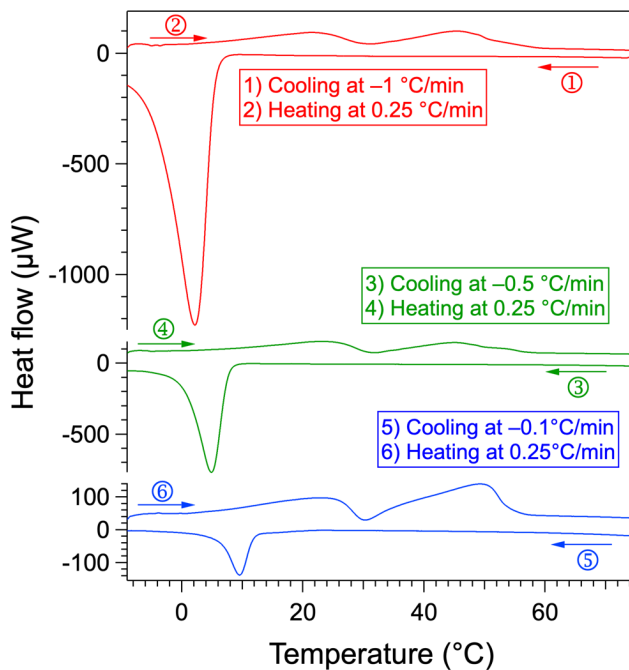
## Electronic Supplementary Information

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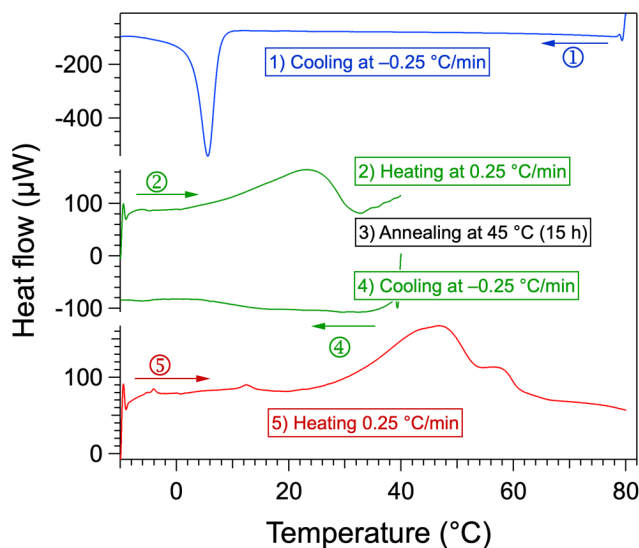
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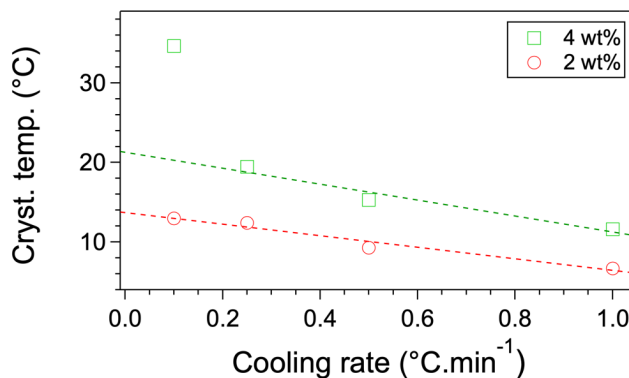
**Figure S1.** Gels of Palm-Phe in different edible oils at a concentration of 2 wt%. From left to right: rapeseed oil, sunflower oil and olive oil.



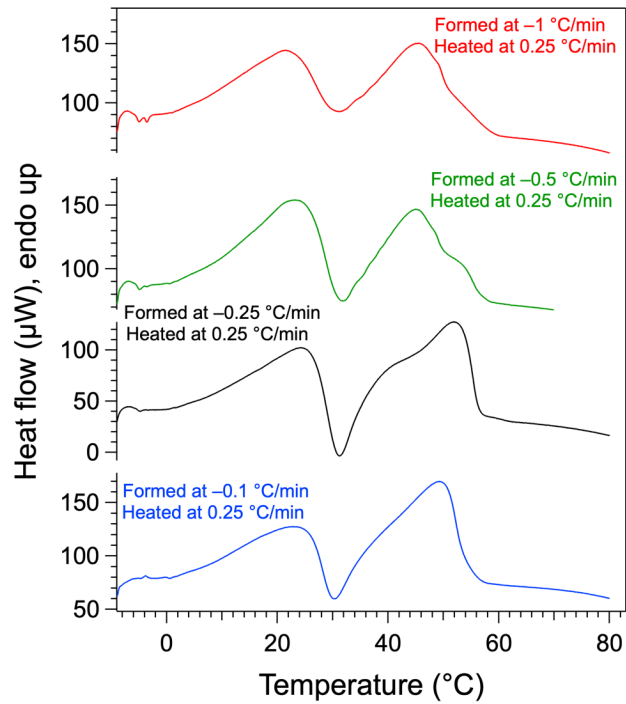
**Figure S2.** Thermograms of a single sample 2 wt. % Palm-Phe/rapeseed oil subjected to three cooling and heating cycles. The circled numbers are the order of each phase in the full sequence



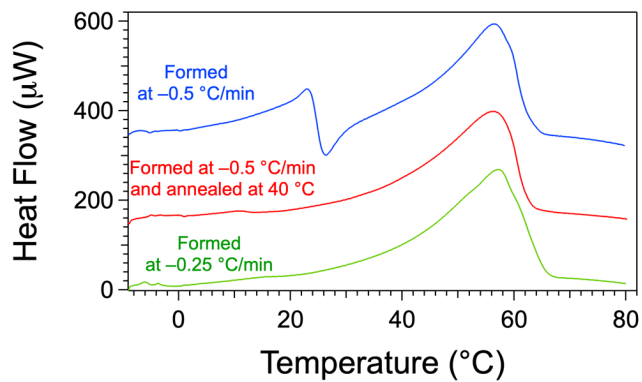
**Figure S3.** Typical thermal history of an annealed sample and the corresponding thermograms measured during the different phases (2 wt%). The phase 2 shows that the sample is heating just above the first transition. The final endotherms obtained by the same history (phase 5) are showed in Figure 5 (4 wt%) or 6B (2 wt%).



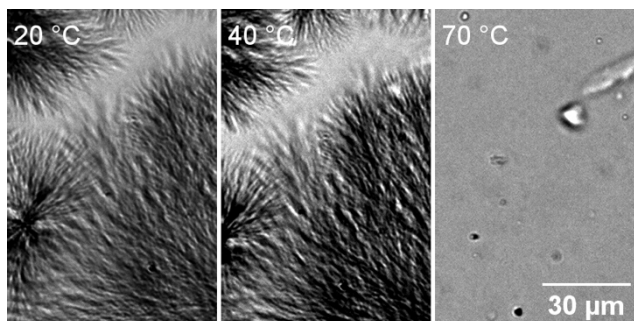
**Figure S4.** Temperature of crystallization of the gelators in rapeseed oil as a function of the cooling rate for the conc. of 2 wt% and 4 wt%. The temperature is the onset of the exotherms such as those observed in Figure S2. At 2 wt%, the dashed line corresponds to a linear fit. The temperature increases linearly when the cooling rate decrease, which shows they represent the same transition. The temperature-intercept of the fit is the transition temperature at null rate. For 4 wt%, the dashed line is the linear fit for the 3 higher rates, which correspond to the formation of solid 1. For the rate of 0.1 °C/min the temperature lies 10 °C above the expected value, because only the solid 2 forms at slow rates.



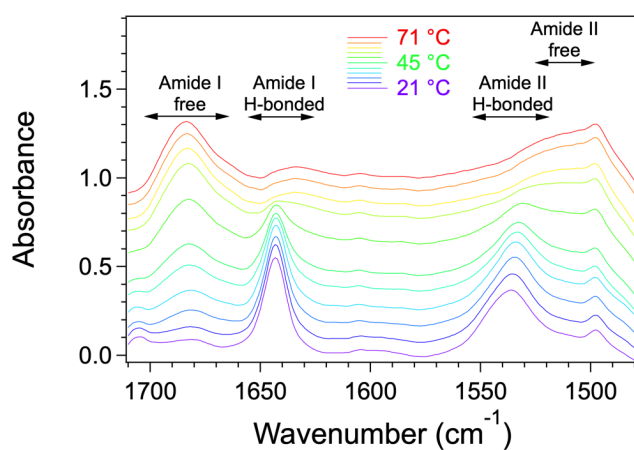
**Figure S5.** Thermograms of a 2 wt% Palm-Phe/rapeseed oil formed at different cooling rates. The thermograms were measured 1 h after the formation of the gel, with a heating rate was  $-0.25^{\circ}\text{C min}^{-1}$ . All the thermograms show two transitions.



**Figure S6.** Thermograms of a 4 wt. % Palm-Phe/rapeseed oil formed with different thermal histories. The thermograms were measured by heating at  $0.25^{\circ}\text{C/min}$ . The curves were shifted for clarity. The top and middle curves are those from Figure 5.



**Figure S7.** OM micrographs (x20 magnification) of Palm-Phe gel at 4 wt% during heating. Left: 20 °C, the sample is in the form of a gel; middle: 40 °C, almost no evolution; right: 70 °C, complete melting. The scale bar is the same for the three pictures.



**Figure S8.** VT-FTIR spectra of Palm-Phe/rapeseed oil 2 wt% heated at 0.25 °C min<sup>-1</sup>, CO stretching area. For clarity, not all the curves are plotted. From bottom to top: 21 °C, 25 °C, 31 °C, 35 °C, 41 °C, 45 °C, 51 °C, 55 °C, 61 °C, 65 °C, 71 °C.