INFLUENCE OF HEATING OF OLIVE OIL AND VEGETABLE OILS ON THE DIFFERENTIAL SCANNING CALORIMETRY (DSC) CURVES.


Studies prove that the frequent use of olive oil is a responsibility for many benefits to human health, such as decrease in high blood pressure, in obesity and in cancer. This paper aims at verifying, by using a thermal analysis approach, some modification that exist when olive oil is heated for certain time at 180ºC. Six samples of extravirgem olive oil (arbequina and picual varieties in Spanish, Portuguese, Italian, Greek and Brazilian) and two refined oils (soybean and sunflower) were subjected to heating (180ºc) oven for 45 minutes, 10, 20 and 30 hours, and in the process of frying with potate chips for 15, 30 and 45 minutes. The samples were submitted to DSC (Perkin Elmer, Pyris Diamond) to a race of -50°C up to 250°C for 10ºC/min. There were changes in the profiles of phase transition in all samples, mostly in warm ups for prolonged times. There was reduction of transition enthalpy (Δh) in samples as heating, though unable to calculate in soybean and sunflower oils in 20 hours, but it was only possible in 30 hours of heating oil in Brazilian and Portuguese (19.36 and 8.54, respectively). Probably it to be related because the formation of oxidation products of triacylglycerols that promote crystal formation more irregular, and require less energy to undergo a phase transition. Evaluation of termograms of DCS are promising in estimating the oxidation and the oil’s degradation induced by high temperature.