

Microencapsulation of Monovarietal Extra-virgin Olive Oil: Influence of Wall Material in the Microencapsulation Process by Spray-drying

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The encapsulation is a process by which small particles of core products are packaged within a wall material to form microcapsules. One of the common techniques to produce encapsulated products is spray drying, which involves conversion of liquid oils in the form of emulsion into dry powders.

Emulsion conditions, wall components and spray-drying parameters have been optimized for the microencapsulation of different monovarietal olive oils ('Picual', 'Morisca' and 'Arbequina'). To achieve this goal, the influence of emulsion time and conditions has been evaluated for the different wall components such as proteins (sodium caseinate and gelatin), hydrocolloids (gum arabic) and hydrolysed starches (starch, lactose and maltodextrin). In addition, for each tested conditions the ratio of wall solid-to-oil and spray-drying parameters were as well optimized.

The microencapsulation effectiveness was determined in base of process yield and the ratio between free and encapsulated oil (microencapsulation efficiency). Highest encapsulation yield were achieved when casein and lactose were used as encapsulation agents and the ratio of wall solids-to-oil was 1:2. In these conditions 53 % of oil was encapsulated. The influence of olive cultivar was evaluated in terms of fatty acids profile alteration after the microencapsulation process.