

3rd International Conference and Exhibition on **Nutrition & Food Sciences**

September 23-25, 2014 Valencia Convention Centre, Spain

Using nanoemulsions as delivery systems for active lipophilic active compounds

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The interest of incorporating lipophilic active compounds, such as vitamins and carotenoids, into food and beverages is growing due to their potential health-benefits. However, the poor water solubility of these substances is currently a challenge to their incorporation into many foods. Nanoemulsions may be excellent carriers of lipophilic active compounds in food products, since it has been shown that the release of drugs through nanostructured systems improves its absorption. Therefore, the aim of the present work was to characterize the physicochemical properties, digestibility and bioaccessibility of nanoemulsions containing active compound-enriched corn oil, in comparison with conventional emulsions. The results obtained evidence that the physicochemical and functional properties of the active compounds could be improved by controlling the composition of the nanoemulsions. Emulsion stability improved substantially with a decrease in droplet size. Regarding the oil digestibility and carotenoid bioaccessibility, the emulsion droplet size and oil concentration significantly influenced their biological fate under simulated digestion conditions. In fact, a strong relationship was observed between the oil digestibility and the β -carotene bioaccessibility. Therefore, the current research represents a new insight to the incorporation of active ingredients in food products, towards a more rationalized and optimized use of food additives.

Biography

Gemma OMS Oliu has completed her PhD in Food Technology (2008) from University of Lleida and postdoctoral studies from Katholieke Universiteit Leuven (2009). She was awarded in 2010 with a PhD Award by the University of Lleida. She was offered a position at the University of Lleida (Spain) as associate professor of the Department of Food Technology in 2009. She has published more than 30 papers in reputed journals and has written different book chapters. Currently she is very much interested in the development of delivery systems of health-promoting food ingredients to improve functionality of food products.

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