Messaouda Kaci et al., J Food Process Technol 2016, 7:12 (Suppl)
http://dx.doi.org/10.4172/2157-7110.C1.056

Acoustic emulsifier free emulsions and lecithin emulsions used as delivery system for coenzyme Q10 vectorization

Messaouda Kaci[1], Arab-Tehrany E[1], Dostert G[1], Desjardins I[2], Velot E[1] and **Desobry S[1]**
[1]Lorraine University, France
[2]Genialis, France

To improve encapsulation and release of coenzyme Q10 (CoQ10), emulsifier-free-emulsions were developed with a new emulsification process by high frequency ultrasound (HFU) at 1.7 MHz. Nano-emulsions containing CoQ10 were elaborated with or without rapeseed lecithin used as emulsifier. The prepared emulsions with HFU was compared with CoQ10 emulsion containing emulsifier developed with the same emulsification technique and also with low frequency ultrasounds coupled with high pressure homogenization (LFU+HPH). The physico-chemical properties of emulsions were determined by: average droplets size measurement with nano-droplets tracking analysis, droplets surface charge with ζ potential measurement, surface tension and rheological behavior. Emulsions made by LFU+HPH with emulsifier showed lower droplets size due to cavitation generated by HFU process. Surface tension results showed that whatever the preparation process, there was no significant difference between emulsions containing lecithin emulsifier, with or without CoQ10. *In vitro* biocompatibility tests were performed on human mesenchymal stem cells in order to show the cytotoxicity of various formulations and also the efficiency of CoQ10-loaded emulsion. *In vitro* tests proved that the vectors were not toxic for cells. Furthermore, CoQ10 provided high rate of cell proliferation and metabolic activity especially for the formulation without emulsifier.

Biography

Messaouda Kaci has completed her graduation in Food Engineering from Higher National School of Agronomy, Algeria, and then she obtained a Master's degree in Food and Biotechnological Science from Nancy University, France. In 2015, she was awarded a PhD from The University of Lorraine, France. She is currently a post-doctoral student and conducts her research on the Stabilization of Nanoemulsions and Vectorization of Hydrophobic Compounds.

Messaouda.kaci@univ-lorraine.fr

Notes: