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Lipid nanocapsules for air microbubble stabilization

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Background: Lipid NanoCapsules (LNC), nano drug carriers, formulated by a phase inversion method are characterized by a shell constituted with two surfactants, Solutol® and Lipoid®. After their formulation, their film properties at the air/water interface had been highlighted. Based on the findings of this study, our research wants to use these LNC film properties to produce gas bubbles for triggering of drug release. But before this application, the ability of LNC to stabilize an air/water interface must to be studied.

Methods: The drop tensiometer was used to measure a surface tension at the air/water interface. Different dilutions of the related suspensions have been prepared. Interfacial stabilization by LNCs has been compared to interfacial stabilization by Solutol® alone.

Results: Lipid NanoCapsules decreased the surface tension from 72 mN/m to 35 mN/m. This action was better than the one induced by surfactants taken directly. The particles size does not influence significantly the obtained values. The adsorption time of Lipid NanoCapsules was in the range, 1 hour and twenty minutes and 2 hours depending on the dilution factor.

Conclusion: The use of Lipid NanoCapsules instead of surfactants offers a possibility to stabilize air microbubbles and to localize at their surface cargo systems that can be loaded with therapeutic agents.

Biography

Mouzouvi C R M got her first Diploma in Pharmacy at the University of Benin five years ago. She completed her Master degree in Medicines development at the Université Cheick Anta Diop de Dakar in 2013. Now, she is applying for her second year of PhD between the University of Angers and the one of Benin. She published three papers in several journals.

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