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Microbubbles formulated with Lipid nanocapsules for a better stabilization

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Microbubbles combined to the Ultrasounds have showed the important effect on drugs and genes delivery. Indeed, these nanoscale particles filled with gas are able to oscillate in the presence of ultrasonic waves applied. Thus, the drugs concentration at the specific area is increased improving their therapeutic effects and reducing adverse effects. In despite of that therapeutical advance, small bubbles stabilization remains a big challenge because of their inherent important Laplace pressures.

In this study, we proposed to use well defined colloidal particles called Lipid Nano capsules (LNCs) to stabilize air bubbles and to investigate on their behavior under ultrasounds using sodium fusidate as a tracer.

Microbubbles were prepared by modified agitation method. Sodium fusidate were incorporated by incubation. The pharmaceutical active triggering release was performed for the sample against a control in the PSB (phosphate solution buffer) using the instrument of SONIDEL LIMITED SP 100 (Dublin, Ireland).

The size distribution of microbubbles formulated was in the range 0, 6-2 μm with an average size of $1, 5 \pm 0, 56(\mu\text{m})$. The encapsulate rate for the bubbles, was 31%. The drug quantity released was 7, 3% against to 8, 3% for the control.

In conclusion, small bubbles can be stabilized by the LNCs allowing them to be charged in drug. The drug encapsulation efficiency and the drug release rate were acceptable because they exceed the minimum inhibitory concentration (IMC) of sodium fusidate. Furthermore, the sodium fusidate loaded-microbubbles efficacy on the bacteria culture could be evaluated.

Biography

Celia MOUZOUVI has gotten her first diploma in pharmacy at the University of Benin five years ago. She has also completed her master degree in medicines development at the ' Université Cheick Anta Diop de Dakar' in 2013. Now she is applying for her third year of PhD between the 'Université d'Angers' and the one of Benin. She is member of ' Comité des experts de validation technique des dossiers de demande d'autorisation de mise sur le marché'. She has up to day fours papers published.

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