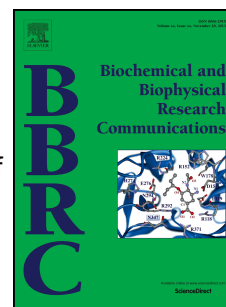


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Erythromycin encapsulation in nanoemulsion-based delivery systems for treatment of *Helicobacter pylori* infection : protection and synergy.

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Abstract

Poorly water-soluble and unstable compounds are difficult to develop as drug products using conventional formulation techniques. The aim of the present study was to develop and evaluate a nanoformulation prepared by a hot high-pressure homogenization method, which was a scalable and solvent-free process. We successfully prepared stable nanodispersions to protect a labile antibiotic, erythromycin. The mean diameter of the dispersed droplets was approximately 150 nm, and size distribution was unimodal. Dispersion was physically stable at room temperature for over six months. Using erythromycin as a model compound, we studied its antimicrobial activity *in vitro* on *Helicobacter pylori*. Results showed that drug encapsulation improves API stability in an acidic environment and is conducive to a synergistic effect between the drug and the formulation.

Keywords: *Erythromycin, Helicobacter pylori, nanoemulsion, high pressure homogenization.*

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