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The clinical efficacy of cosmeceutical application of liquid crystalline nanostructured dispersions of alpha lipoic acid as anti-wrinkle.

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Abstract:

Topical 5% alpha lipoic acid (ALA) has shown efficacy in treatment of photo-damaged skin. The aim of this work was to evaluate the potential of poloxamer (P407) gel as a vehicle for the novel lipid base particulate system (cubosome dispersions) of ALA. Cubosome dispersions were formulated by two different approaches, emulsification of glyceryl monoolein (GMO) and poloxamer (P407) in water followed by ultrasonication, and the dilution method using a hydrotrope. Three different concentrations of GMO were used to formulate the cubosome dispersions using the first method, 5% (D1), 10% (D2) and 15% w/w (D3). In the second technique an isotropic liquid was produced by combining GMO with ethanol, this isotropic liquid was then diluted with a P407 solution (D4). The dispersions were characterized by zeta-potential, light scattering techniques, optical and transmission electron microscopy, encapsulation efficiency and *in-vitro* drug release. Results showed that D4 was not a uniform dispersion. D1, D2 and D3 were uniform dispersions, in which by increasing the GMO content in the dispersion, the size of the cubosomes decreased, zeta potential became more negative, encapsulation efficiency increased up to 86.48% and the drug release rate was slower. P407 gels were