



Development of Semi-Solid Cosmetic Formulations Containing Coenzyme Q10-Loaded Nanocapsules

Thatiana TERROSO ¹, Irene C. KÜLKAMP ¹, Denise S. JORNADA ¹,
Adriana R. POHLMANN ^{1,2} and Sílvia S. GUTERRES ^{1*}

¹ *Programa de Pós-Graduação em Ciências Farmacêuticas, Universidade Federal do Rio Grande do Sul (UFRGS). Avenida Ipiranga 2752, CEP 90610-000, Porto Alegre, Brazil.*

² *Departamento de Química Orgânica, UFRGS. CP 15003. CEP 91501-970, Porto Alegre, Brazil.*

SUMMARY. Nanocapsule suspensions containing coenzyme Q10 were prepared by interfacial deposition. The nanocapsules showed characteristics compatible with dermal application: slightly acid pH, drug content close to 100%, particle size between 213 and 248 nm with low polydispersity and negative zeta potential. Three cosmetic formulations for skin application were developed, one with the free-coenzyme Q10, a second with a suspension of coenzyme Q10-loaded nanocapsules and a third containing dried coenzyme Q10-loaded nanocapsules. The dried nanocapsules were obtained by spray-drying of the suspension. No significant differences in the diameters of the particles after their incorporation in the semi-solid formulations were observed in comparison with those of nanocapsules in the aqueous suspension. The rheological characterization showed that the formulations containing coenzyme Q10-loaded nanocapsules had a pseudoplastic flow, while the formulation containing free-coenzyme Q10 had a yield-pseudoplastic flow. The semi-solid formulations containing coenzyme Q10-loaded nanocapsules suspension or powder of nanocapsules of coenzyme Q10 redispersed in water are promising cosmetic formulations for topical application.

KEY-WORDS: Coenzyme Q10, Nanocapsules, Rheological characterization, Semi-solid formulations.

* Author to whom correspondence should be addressed. *E-mail:* silvia.guterres@ufrgs.br