



Hydrogel-Thickened Nanoemulsion with Green Coffee Seed Oil for Topical Delivery of Vitamin A

Juliana S. OLIVEIRA, Tatiana A. AGUIAR, Hygor MEZADRI & Orlando D.H. SANTOS*

*Departamento de Farmácia, Universidade Federal de Ouro Preto,
Ouro Preto, MG, Brasil*

SUMMARY. Nanoemulsions are special emulsions that consist in a very small drop with sizes between 20 to 500 nm. When they are intended for topical application, the main problem of nanoemulsions is their low viscosity, which is reflex of the small drop size. It was proposed the attainment of hydrogel-thickened nanoemulsions with vitamin A palmitate (retinyl palmitate) with green coffee seed oil by phase inversion. Hydrogel-thickened nanoemulsions with drops size ranging between 77 to 110 nm were obtained, depending on the polymer used, with increased viscosity. Rheological profile of developed hydrogel-thickened nanoemulsions was determined, showing the influence of the kind of polymer used, here all presented pseudo-plastic behaviour, with different viscosity measurement. The improvement of the viscosity of the systems, associated with the small droplet size, can be very interesting for vitamin A delivery under the skin.

KEY WORDS: Green coffee seed oil, Hidrogel-thickened nanoemulsion, Phase inversion, Vitamin A palmitate.

* Author to whom correspondence should be addressed. *E-mail:* orlando@ef.ufop.br