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Liposomal PEG-Free Creams with Herbal Extracts: Stability Study

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The propylene glycol Liquorice, Marigold and Yarrow extracts (LE, ME, YE-respectively) were obtained by the repercolation method, in the plant:extract ratio 1:2. Its appearance, relative density, index of refraction, pH values and dry materials content were evaluated. The extracts were encapsulated into the instant liposome (Natipide® II, Nattermann Phospholipids, Germany). Liposomal encapsulation of LE, ME and YE extracts was done by mixing of instant liposomes and the extract (2:1) in an ultrasound bath for 10 min. The obtained dispersions were diluted with purified water, in the ratio 1:1 and homogenised during 15 min to get final dispersion LD, MD and YD, respectively. Average radius of the liposomes size in dispersions was determined spectrophotometrically. For obtaining the O/W emulsion-type creams-vehicle, applying the cold-cold method, we used 5%w/w Emulgin®VL75 emulsifier [Lauryl Glycoside (and) Polyglyceryl-2 Dipolyhydroxystearate (and) Glycerine] (Cognis, Germany). The composition of vehicle is the same as described previously [1]. The extracts LE, ME and YE (5% w/w) were incorporated in the vehicle (LC, MC and YC creams obtained). The liposomal dispersions LD, MD and YD were incorporated (30%) in the vehicle to obtain LLC, MLC and YLC creams, respectively. Liposomal creams (LLC, MLC, YLC) and nonliposomal creams (LC, MC, YC) were inspected simultaneously: stability under storage: at room temperature (22°C±2), in hot air at 45°C±2 and at 5°C±2; centrifuge test: centrifuged in two 15-minutes runs, each at 3000 rpm; organoleptic properties inspected both visually and by smear tests on glass slabs: appearance, colour, odour and homogeneity of the samples; pH values of the creams were obtained by direct potentiometric method; rheological characterization of creams: Rotovisko RV 12 with coaxial sensor cylinder systems SVst, Svdi, was used (measurements carried out at 20±0,1°C with shearing rates continuously changing within the ratio from 0 to 110s⁻¹). The results indicate that emulsifier mentioned in the text above is suitable excipient for preparation of stable o/w creams-vehicles for incorporation of LE, ME and YE as well as liposomes filled with extracts.

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- [1] Cupara S, Arsic I, Homsek I, Tadic V, Jankovic S, Djordjevic S. Moisturizing effect of o/w oleosome structure creams containing sea buckthorn fatty oil and olive oil. Book of Abstract, No 35, 6th World Meet Pharm. Biopharm. and Pharm. Technol, 7-10 04. 2008, Barselona, Spain.