FTIK-P18 DA LI BILJNI EGZOZOMI U LIPOSOMIMA IMAJU UTICAJ NA REOLOŠKE I TEKSTURNE KARAKTERISTIKE EMULZIJE STABILIZOVANE LAMELARNOM FAZOM?

M. Filipović[1], V. Krstonošić[2], M. Tasić-Kostov[3], J. Bašić[1], M. Lukić[4]
[1]Akademija strukovnih studija Beograd, Beograd, Srbija, [2]Univerzitet u Novom Sadu, Medicinski fakultet, Katedra za farmaciju, Novi Sad, Srbija, [3]Univerzitet u Nišu, Medicinski fakultet, Katedra Farmacija, Niš, Srbija, [4]Univerzitet u Beogradu – Farmaceutski fakultet, Beograd, Srbija

Egzozomi su vezikule koje igraju ključnu ulogu u međućelijskoj komunikaciji. U kozmetičkim proizvodima ostaju stabilni zahvaljujući inkapsulaciji u liposome i pažljivom odabiru kozmetičkih sastojaka. Cilj studije bio je da se ispita da li biljni egzozomi u liposomima (PhytoCellTec™ Exosomes, INCI: Lycium Barbarum Callus Culture Extract, Isomalt, Lecithin, Aqua; veličina vezikula 200 nm) utiču na mehanička svojstva emulzija stabilizovanih različitim emulgatorima koji formiraju lamelarne faze. Pripremljena su četiri placebo krema (stabilisana različitim emulgatorima) i četiri aktivna uzorka (odgovarajući placebo krem sa PhytoCellTec™ Exosomes) i okarakterisana pomoću reološke i teksturne analize. Odabrani emulgatori bili su: Emulgade® PL 68/50 (F1, F1a), Olivem® 1000 (F2, F2a), Phytocream® 2000 (F3, F3a) i Emulgade® Sucro (F4, F4a). Kontinualna reološka analiza je pokazala da svi uzorci, osim F4, pokazuju vremenski zavisno – tiksotropno ponašanje. Dodavanje liposoma dovelo je do povećanja viskoziteta aktivnih uzoraka i blage promene reološkog ponašanja, posebno kod uzoraka F4 i F4a. Histerezna površina je bila neznatno izmenjena kod svih uzoraka. Elastični modul (G') bio je veći od viskoznog modula (G") kod svih uzoraka, a dodavanje liposoma dovelo je do blagog povećanja oba modula kod svih uzoraka osim F4a. Dodavanje liposoma u uzorke F1a i F2a dovelo je do statistički značajnog povećanja tvrdoće i smanjenja kohezivnosti i smanjenja svih teksturnih parametara kod uzoraka F3a i F4a. Studija je potvrdila da dodavanje PhytoCellTec™ Exosomes utiče na reološke i teksturne karakteristike proizvoda, u zavisnosti od vrste upotrebljenog emulgatora.

FTIK-P18 DO LIPOSOME-ENCAPSULATED PLANT EXOSOMES HAVE AN INFLUENCE ON THE RHEOLOGICAL AND TEXTURAL CHARACTERISTICS OF THE EMULSION STABILIZED BY THE LAMELAR PHASE?

M. Filipović[1], V. Krstonošić[2], M. Tasić-Kostov[3], J. Bašić[1], M. Lukić[4]
[1]Academy of Applied Studies Belgrade, Belgrade, Serbia, [2]University of Novi Sad, Faculty of Medicine, Department of Pharmacy, Novi Sad, Serbia, [3]University of Niš, Faculty of Medicine, Department of Pharmacy, Niš, Serbia, [4]University of Belgrade – Faculty of Pharmacy, Belgrade, Serbia

Exosomes are vesicles that play a crucial role in intercellular communication. In cosmetic products, they remain stable thanks to liposome encapsulation and careful selection of ingredients. The aim of study was to investigate whether liposome-encapsulated plant exosomes (PhytoCellTec™ Exosomes, INCI: Lycium Barbarum Callus Culture Extract, Isomalt, Lecithin, Aqua; size of vesicles 200 nm) affect the mechanical properties of emulsions stabilized with different emulsifiers that form lamellar phases. Four placebo creams (stabilized by different emulsifiers) and four active samples (the corresponding placebo with PhytoCellTec™ Exosomes) were prepared and characterized by rheological and texture analysis. The selected emulsifiers were: Emulgade® PL 68/50 (F1, F1a), Olivem® 1000 (F2, F2a), Phytocream® 2000 (F3, F3a) and Emulgade® Sucro (F4, F4a). Continuous rheology showed that all samples, except F4, exhibited "shear-thinning" flow behavior with thixotropy. The addition of liposomes increased the viscosity of the active samples and caused a slight change in rheological behavior, especially for F4 and F4a. The hysteresis area was insignificantly altered in all samples. The storage modulus (G') was higher than the loss modulus (G") for all samples, and the addition of liposomes led to a slight increase in both moduli for all samples except F4a. The addition of liposomes in F1a and F2a resulted in a statistically significant increase in hardness and a decrease in cohesiveness, as well as a decrease in all textural parameters in F3a and F4a. The study confirmed that addition of PhytoCellTec™ Exosomes influences a product's rheological and textural characteristics, depending on the type of emulsifier used.

https://doi.org/10.5937/sfuskongres26309F