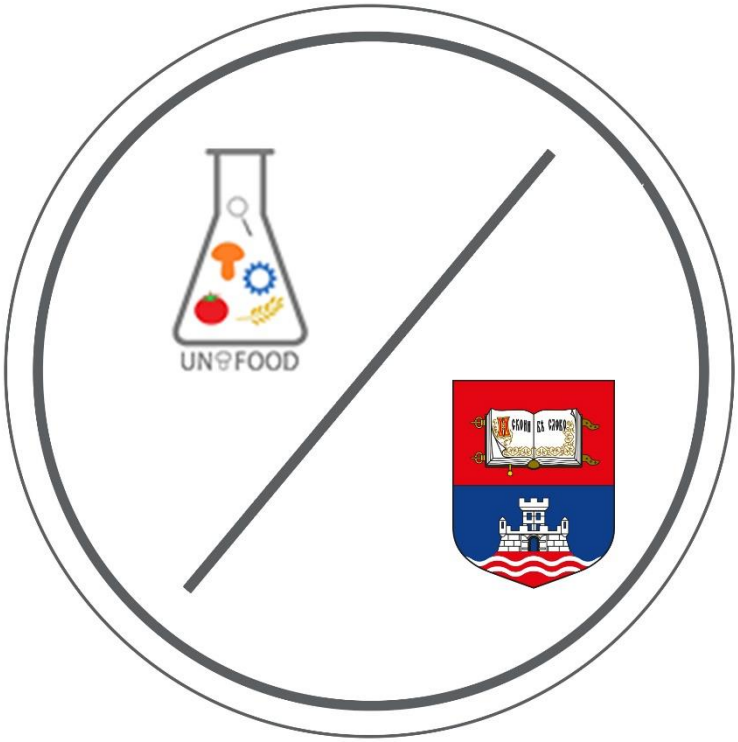
UNIFOOD CONFERENCE



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THYMUS SERPYLLUM L. EXTRACT LOADED LIPOSOMES PRODUCED BY PROLIPOSOME METHOD

***Aleksandra, Jovanović*[1*], Balanč, Bojana[1], Petrović, Predrag[1], Djordjević, Verica[2], Katarina, Šavikin[3], Gordana, Zdunić[3], Bugarski, Branko[2]**

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Polyphenols, as secondary metabolites from plants, are used as food complements or ingredients within the pharmaceutical or cosmetic formulations. However, their use is rather limited, due to their low bioavailability, integrity, permeability, and solubility. Namely, polyphenols' sensitivity to environmental factors during food processing, distribution, or storage, or in the gastrointestinal tract, also limit their activity and the potential health benefits. Thus, the encapsulation of polyphenol extracts represents an appropriate way to overcome the mentioned disadvantages. *Thymus serpyllum* L. ethanol extract obtained in heat-assisted extraction (80°C), rich in polyphenol compounds, was encapsulated into liposomes produced using phospholipids and proliposome method. Total polyphenol content in extract and encapsulation efficiency were determined using the Folin-Ciocalteu procedure. Particle size, polydispersity index, and zeta potential of empty and extract loaded liposomes were measured during 28 days using photon correlation spectroscopy. Total polyphenol content of the extract was amounted to 2.08±0.14 mg of gallic acid equivalents/mL, whereas encapsulation efficiency was 89.4±0.8%. During the 28-days stability study, the particle size of empty liposomes varied between 420.6±4.3 and 581.6±3.4 nm with polydispersity index from 0.109±0.067 to 0.295±0.009, while the size of extract loaded liposomes was between 278.7±1.5 and 456.4±9.3 nm with polydispersity index 0.179±0.094 to 0.284±0.005. Zeta potential of empty liposomes varied from -17.1±0.2 to -27.3±0.5 mV, whereas the zeta potential of extract loaded liposomes was between -13.6±0.3 and -25.4±1.4 mV. The aim of this study is to provide evidence for food manufacturers and food scientists to make broader use of *T. serpyllum* loaded liposomes that can add value and improve the quality of existing food, pharmaceutical and cosmetic products.

Keywords: encapsulation efficiency, liposomes, proliposome method, Thymus serpyllum.

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