# UV IRRADIATION INFLUENCE ON FUMITORY EXTRACT-LOADED LIPOSOMES

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## Abstract

*Fumaria officinalis L. is a scrambling annual plant, disturbed and cultivated throughout Europe, and represents a component of various phytotherapeutic formulations in the European ethnobotany used in hepatobiliary dysfunction, illnesses of gastrointestinal and urogenital tracts, cancer, rheumatism, high blood pressure, and skin disorders. The aim of the present study was the characterization of fumitory extract-loaded liposomal vesicles after UV irradiation via the determination of encapsulation efficiency, size, polydispersity index (PDI), zeta potential, mobility, and conductivity. The encapsulation efficiency was the same before and after UV irradiation (>69%). Particle size and PDI of the UV-irradiated liposomes with fumitory extract were 294.2±4.1 nm and 0.387±0.011, respectively. The zeta potential after UV irradiation was -5.51±0.4 mV. Mobility and conductivity of the obtained liposomal particles were -0.429±0.012 μmcm/Vs and 0.468±0.005 mS/cm, respectively. The results indicate the existence of nanoparticles and a non-uniform system with very low values of zeta potential and mobility. A negative zeta potential value is related to the organization of phospholipids, whereas a low value suggests that the liposomal suspension is not electrostatically stabilized. The beneficial effects of bioactive principles from F. officinalis on human health highlight the application of liposomes as a carrier for its extracts and their potential implementation in various formulations. Since UV irradiation did not cause significant changes in all mentioned parameters of fumitory extract-loaded liposomes, it can be employed as a sterilization step in the preparation of liposomes for potential application in foods, functional foods, dermo-cosmetics, and pharmaceutics.*

**Keywords:** *Fumaria officinalis, liposomes, particle size, UV irradiation, zeta potential.*