Novel formulation of liposome-encapsulated anthocyanin

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Anthocyanins, natural plants pigments founds in significant amount in edible berries and in many vegetables showed to have high antioxidant activity. Recent data showed that anthocyanins from berries may induce cellular signal transduction events, involved in the cell proliferation [1], induction of apoptosis [2]. Anthocyanins are hydrosoluble macromolecule, unstable and highly susceptible to degradation. For their effective targeted administration, delivery systems, such as liposomes or emulsions are necessary to preserve anthocyanins physicochemical characteristics and protect them against degradation. Nanoscale delivery systems using liposomes and nanoparticles are emerging technologies for the rational delivery of adjuvant treatment with applications in alternative medicine. Liposomes are excellent candidates for anthocyanins delivery due to their biocompatibility, the possibility to fine-tune their physico-chemical properties, according to their lipid composition and content and also, due to the possibility to tailor their surface composition [3].
Based on this, the aim of our study was to prepare liposomes encapsulation anthocyanins (AEL) with size range under 300 nm.
Liposomes containing egg phosphatidylcholine, cholesterol, deoxycholic acid and tween-80 were prepared by the conventional film method with some modifications. The physicochemical characteristics of obtained AEL including particle size, distribution and shape, zeta potential and encapsulation efficiency of liposomal formulations were analysed. Pure anthocyanins were efficiently encapsulated within liposomes. The encapsulation efficiency of anthocyanin in liposome was above 90% for all formulations. Moreover no difference in particle size was observed between empty liposomes and anthocyanin liposomes as obtained by TEM characterisation.

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