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INCORPORATION OF 2-STYRYLCHROMONES IN LIPOSOMES: PRELIMINARIES STUDIES

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Abstract

Several compounds with a 2-styrylchromone chemical structure have been shown to hold a high antioxidant activity *in vitro*, at low concentrations, which indicates a potential therapeutic value that needs to be confirmed *in vivo* [1-2]. The evaluation of the antioxidant potential of 2-styrylcromones, *in vivo*, is expected to beneficiate from a formulation that delivers the compound to specific target sites. Due to the structural analogies of 2-styrylcromones with flavonoids, a controlled delivery system – liposomes - was chosen to take advantage of the well known pharmacokinetic behaviour of liposome-incorporated flavonoids. Liposomes are lamellar lipidic structures which form almost spontaneously when certain lipids are hydrated in aqueous media [3,4].

This work presents, for the first time, the results of the incorporation of 2-styrylcromones in liposomes. The characterization of the obtained formulations was based in the study of the encapsulation efficiency of the compound in liposomes, the knowledgment of the primary concentration of compound in the incorporation process and the effect of the addition of freeze-drying protector, threalose, to the formulation.

The obtained results showed that 2-styrylcromones could be encapsulated in lipossomes with high incorporation efficiency. The highest encapsulation efficiency was achieved with a concentration of drug of 1μmol per 10 μmol of total lipid. The results concerning the addition of threalose to the formulation indicated that the use of the freeze-drying protector reduces the effects caused by freeze-drying, such as the growth of the vesicles.

This liposomal formulation is expected to allow the diffusion of these compounds to the target site in therapeutic concentrations.

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