



Curcumin-Loaded Polymeric and Lipid Nanocapsules: Preparation, Characterization and Chemical Stability Evaluation

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SUMMARY. Polymeric and lipid nanocapsules suspensions of the natural compound curcumin were prepared in order to overcome limitations associated with its clinical applications, such as poor aqueous solubility and susceptibility to hydrolytic and photochemical degradation. Nanocapsule suspensions were prepared by nanoprecipitation and phase inversion methods, respectively. The curcumin formulations were investigated for physicochemical characteristics and *in vitro* drug release. The hydrolytic and photochemical degradation of the drug associated with the nanocarriers was also determined. For all formulations, the entrapment efficiency values were higher than 99 %. The aqueous colloidal suspensions of curcumin resulted in an increase in drug concentration by a factor of up to 46.10^3 times. Moreover, stability studies indicated that nanoencapsulation slows down the hydrolytic and photochemical degradations of curcumin. The strategy of nanoencapsulation into polymeric and lipid nanocapsules produced a formulation of curcumin with high drug loading and improved stability, representing a good strategy for the delivery of this drug.

KEY WORDS: Curcumin, Drug delivery systems, Nanocapsules.

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