ABSTRACT

Curcumin-Chitosan Nanoparticle as Strategy to Enhance Bioavailability of Curcumin

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Curcumin is a polifenol substance which has wide pharmacological activities. Curcumin is class 4 candidate of the biopharmaceutical classification system (BCS), it has a low solubility and permeability. Nanoparticle can increase the solubility of curcumin due to its small size that could enhance contact surface area with the solvent. Chitosan, a characteristic natural polymer is nontoxic, biocompatible, biodegradable and approved by FDA for drug delivery system. Positive charge of chitosan provides useful properties such as interaction with anionic drugs, mucoadhesion was considered responsible for prolonging the drug residence at the absorption site and enhancing the drug bioavailability, increased permeation and inhibited pump efflux to the system. The objective of this review article was to understand the effect of nanoparticle curcumin using chitosan on the bioavailability enhancement of curcumin. This study concluded that encapsulation curcumin into chitosan nanoparticle increase bioavailability of curcumin by reducing particle size and the addition of functional groups that enhance solubility.

Keywords: Chitosan, Chitosan Derivative, Curcumin, Nanoparticle, Bioavailability