ENHANCED IN VITRO GASTROINTESTINAL STABILITY OF CURCUMIN DIETHYL DISUCCINATE USING CHITOSAN/ALGINATE NANOPARTICLES

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Abstract - The aim of this study was to investigate the influence of encapsulating curcumin diethyl disuccinate (CDD) in chitosan nanoparticles (CNPs) on its gastrointestinal tract (GIT) stabilty and bioaccessibility. The nanoparticles were fabricated by the o/w emulsification and ionotropic gelification techniques. The nanoparticles shown a spherical morphology with narrow size distribution, and the nanoparticles exhibited nano-sized range and colloidal stability zeta potential with moderate high of encapsulation efficiency (EE) and loading capacity. In addition, the CDD-CNPs formulation could enhanced the GIT stability of CDD when exposed to digestive enzymes. Compared with native CDD, the GIT stabilty of CDD encapsulated in CNPs in term of changing in particle size and zeta potential after exposure to simulated digestive enzymes was significantly. These findings suggest that CNPs have potential applications in the development of effective oral delivery systems of CDD as well as other hydrophobic drugs and bioactive compounds into functional food, dietary supplement, relevant medical or pharmaceutical sciences.

Keywords - Alginate, Chitosan, Curcumin Diethyl Disuccinate, Gastrointestinal Stability.