

“Formulation development and evaluation of chitosan nanoparticles loaded with curcumin”

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ABSTRACT

Background: The ancient Indian system of medicine – Ayurveda is concerned with prevention, diagnosis and cure of disease. Traditional doctors in India and China have long used turmeric as a remedy. Turmeric is widely consumed in the countries of its origin for a variety of uses, including a dietary spice, a dietary pigment, and an Indian folk medicine for the treatment of various illness. Currently turmeric has been of immense interest all over the medicinal world and proposed as potential candidate for therapeutic medicament development for wide range of its therapeutic and biological activities including.

Aim/objective: Curcumin has a tremendous potential as a therapeutic compound but its effectiveness and oral bioavailability is limited by poor solubility and poor formulation characteristics. The recent research works are being focused on improving poor bioavailability of drugs and phytochemicals by nanoencapsulation technique. The purpose of this study was to prepare and characterize curcumin loaded chitosan nanoparticles. The solubility of Curcumin was determined in aqueous and non-aqueous solvents. Curcumin is very less soluble in water. It is well soluble in methanol, ethanol, chloroform, and in acetone.

Method-: The curcumin loaded chitosan nanoparticles was prepared by ionic gelation of chitosan with tripolyphosphate. The chitosan used in the formulation as a carrier in polymeric nanoparticle for drug delivery. Tripolyphosphate (TPP) is used in the formulation as a cross linking agent. The entrapment efficiency and loading capacity was determined by ultracentrifugation at 15000rpm, 4⁰C for 30 minutes. Surface morphology was determined by Transmission electron microscopy (TEM) and particle size by Malvern Zeta sizer.