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Formulation and characterization of Chitosan encapsulated myricetin nanoparticles.

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Chitosan is a natural polymer prepared by the N-deacetylation of chitin. In particular, this material is biocompatible, chemocompatible and biodegradable which, shows the high drug loading efficiency when formulated as nanoparticles. Myricetin are natural polyphenol molecules exhibits antibacterial, anticancer, antioxidant, chemo-preventive and antiinflammatory properties. These polyphenols are safe and having few side effects. Various studies elucidate that myricetin stability, decrease in efficacy due to poor solubility and poor permeability. An increase in the therapeutical activity can be achieved when formulated as nano formulation thereby, increase in the solubility and permibility can be achived. This novel formulation was prepared by solvent evaporation technique and evaluated using zeta sizer, scanning electron microscopy (SEM) and Fourier Transform InfraRed (FT-IR) Spectroscopy. The developed formulation was further subjected to in-vitro and in-vivo evaluation. The prepared nanoparticles were in the size range of 100- 200 nm. The in-vitro release profile was found to be slow and sustained when mixed with Chitosan. The in-vivo pharmacokinetic studies were carried in rabbits and the pharmacokinetic profile was studied. The novel drug delivery systems can improve the therapeutic efficacy which, resulted in the dose reduction.

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