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Advantages of chitosan – Curcumin nano system for multiple remedies

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Chitosan a natural biopolymer possess interesting properties towards drug delivery carrier system applications and theranostics application. Chitosan based polyelectrolyte complexes could be used as a promising drug delivery, antibacterial and theranostics applications now a days. Curcumin a natural therapeutic drug obtained from turmeric is a promising anticancer, antibacterial application in future. Natural Cancer Drug Curcumin is a well-known dietary polyphenol derived from the rhizomes of turmeric (*Curcuma Longa*), an Indian spice, which is usually used in preparation of mustard and curry. Three curcuminoids, namely curcumin, demethoxy curcumin, and bisdemethoxy curcumin, are present in the natural extracts of *Curcuma Longa* with curcumin as the principal constituent. This yellow color spice has been used for thousands of years as a traditional remedy. In Asian medicines, curcumin has been used for the treatment of acne, psoriasis, dermatitis, and diaper rash. It is a golden-yellow solid, with a molecular weight of 368 g mol⁻¹ and a melting point of 183 °C. It is often used as a dye owing to its vibrant colour. The aromatic rings are functionalized with methoxy and hydroxy groups in an ortho position with respect to one another. The aromatic rings are connected to one another via a seven-carbon spacer that contains two α , β -unsaturated carbonyl groups. As a result of this structure, a

beta-diketone and equilibrating keto-enol tautomeric forms of curcumin are possible. While curcumin gained immense attention as a medicinal drug in modern medical applications only a few decades ago, it has been used for hundreds of years in some regions of the world. In Asia, especially in India and China, turmeric has been used as a drug for more than two thousand years. Ayurveda, an ancient medicinal system practiced in India, incorporated the use of natural herbs to treat various illnesses. Amongst the commonly used herbs, turmeric was used most abundantly due to the medicinal effects of curcumin. In the traditional Ayurvedic approach, turmeric was crushed into a paste for the treatment of eye infections, burns, bug bites, and any skin related diseases. Furthermore, new mothers in India are given a drink containing turmeric paste, honey, ginger, and milk to drink daily following child birth. Turmeric is also used in different forms to cure cough and respiratory complications, along with dental diseases, flatulence, and indigestion. Curcumin was also used as a medicine in ancient Polynesian culture. It has been noted in historical documents that the Polynesian people carried turmeric with them during long voyages to Hawaii. Today, Hawaiians utilize curcumin for various medicinal purposes. It is known to them as Olena.

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