

## **Chitosan nanoparticles as vectors for the release of bioactive plant substances: application in the medical and agri-food fields**

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Chitosan is a linear polysaccharide that can be obtained from de-acetylation of chitin present in fungal cell wall and crustacean shells. It is non-toxic, biocompatible and biodegradable. It was demonstrated to exert direct antimicrobial activity and indirect resistance induction of several defense responses in the plants. Polyphenols, such as anthocyanins, cause intense biological activity towards normal and cancer cells, including selective cytotoxicity, cell cycle perturbation, anti-proliferation and apoptosis, but have low stability and bioavailability. We combined the properties of chitosan and anthocyanidin and produced nanoparticles to be used as an adjuvant for the treatment of specific drug-resistant tumor cells. The stabilization of polyphenols carried out by chitosan can also be exploited in the agri-food sector.