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Mechanistic study on antibacterial action of zinc oxide nanoparticles outcome

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Abstract

A large array of diseases caused by bacterial pathogens and origination of multidrug resistance in their gene provokes the need of developing new vectors or novel drug molecules for effective drug delivery and thus, better treatment of disease. Nanoparticles have emerged as a novel drug molecule in last decade and has been used in various industrial fields like cosmetics, healthcare, agricultural, [dentistry](#) and pharmaceutical approaches due to their high optical, electronic, medicinal properties. Use of nanoparticles as an antibacterial agent has proven successful in current studies with metal nanoparticles like silver, gold, copper, iron and metal oxide [nanoparticles like zinc oxide](#), copper oxide, titanium oxide and iron oxide nanoparticles. [Synthesis of Zinc Oxide Nanoparticle \(ZnO NP\)](#) and its anti-bacterial application has been particularly proven in separating pathogens which result in [decreased inflammation in soft tissue and derma surfaces](#). The present study highlights differential nanoparticle attachment to gram + and gram - bacterial surface and different mechanism adopted by nanoparticle mineral classes for bacterial control whereby reducing infections of soft tissue to include [oral related surfaces](#). Pharmacokinetics and applications of ZnO NP are also discussed briefly.

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