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Review article

## Nanoantioxidants - Potential therapeutic approaches

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### Abstract

Antioxidants have been used in dermal drug deliveries since decades. Recent development in drug delivery approaches tend to use nano technology based antioxidants i.e. nano-antioxidants in treatment of various diseases such as neurodegenerative conditions, diabetes mellitus, cancer as well as in human nutrition. Nanoceria is a new antioxidant and its application has a significant importance in the medical and biological fields. By using the techniques of nanotechnology, the biologically active antioxidant substances or drugs can be encapsulated into the singular polymeric nanofibres. By this approach the biologically active substances can be entrapped as well as attached as nanoparticles. Humans have developed complex antioxidant systems that can provide protection to cells from prooxidant conditions. Deficiency in any of these components can result in depletion of the overall antioxidant status of an individual. Antioxidants agents can be endogenous or exogenous and they can be obtained through our diet or with the help of dietary supplements. Nanoantioxidants consist of inorganic nanoparticles which possess intrinsic antioxidant properties. They also consist of nanoparticles which are functionalized with antioxidants or antioxidant enzymes to function as an antioxidant delivery system. Nanoparticles which contain antioxidants have shown promise as high performance therapeutic nanomedicine in depleting oxidative stress with possible applications in treating as well as preventing numerous disease conditions. In this article we will review the various approaches related to use of nanoantioxidants as potential drug delivery systems and their applications.

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