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Background

Nanotechnology involves the creation and manipulation of materials at nanoscale levels to create products that exhibit novel properties. Engineered nanomaterials, or nanoparticles (NP), are defined as materials produced within the range of 1-100 nm (10^{-9} m) in length or diameter. Nanomaterials possess increased structural integrity as well as unique mechanical, optical, chemical, electrical and magnetic properties (Oberdorster *et al.,* 2005; Thomas and Sayre, 2005). In this nanotechnological development, nanoparticles have attracted a great deal of attention. The unique function of these "nanomaterials" directly depends on their size and structure-dependent properties, as do the environmental and health effects. Nanoparticles are of particular concern due to their extremely high surface area and increased reactivity. Because of these unique physical and chemical properties, NP can potentially impact the health of those exposed to them during industrial manufacturing and production. Nanomaterials have gained enormous attention and are currently being widely used in modern technology. Although the applications and benefits of these engineered nanomaterials are extensively studied, (Hoet *et al.,* 2004) there is a severe lack of information concerning the human health and environmental implications of occupational exposure during the manufacturing and handling process. Therefore, in the present book we have reviewed the potential toxic effects of nanoparticles by exploring the therapeutic like antimicrobial aspects.