

Effect of Metal Oxide Nanoparticles (Gold and Silver) on Enzyme Activity: A Review

Minakshi Sharma^{1*} and Mamta Sharma²

^{1,2}Department of Zoology, Maharshi Dayanand University, Rohtak-124001, Haryana
E-mail: ¹sminakshi.2007@rediffmail.com

Abstract—Nanotechnology involves the creation and manipulation of materials at nanoscale levels and is a promising field for generating new applications in medicine. Since gold and silver metal oxide nanoparticles exhibits remarkably unusual physical, chemical and biological properties. Still, the strong antimicrobial activity is a major direction for development of AgNO₃ products. Noble gold nanoparticles (AuNps) are generally nontoxic due to their inert nature. The gold nanoparticles are easily tagged with various proteins and biomolecules rich in aminoacid leading to important biomedical applications including targeted drug delivery, cellular imaging, and biosensing. In contact with human body, nanoparticles can undergo a series of processes like binding and reacting with proteins, phagocytosis, deposition, clearance and translocation. various enzymes involved in the first phase of drug metabolism and plays a major role in detoxification of a wide range of xenobiotics and endogenous substances. The enzymes play major role in human metabolism and the drugs which contain nanoparticles can interact with the enzymes either in a negative or positive way. So, the present paper will focus on the effect of gold and silver nanoparticles which are commonly used in the drugs and medicines on the activity of various metabolic enzyme in the form of a review.

Keywords: Silver nanoparticles, Gold, Enzymes, proteins, medicine