



Nanotechnology of Modern, Traditional & Alternative Medicines

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ABSTRACT: When you or a friend or relative unfortunately falls ill, a whole range of technologies is used by doctors to help you get better. One such new technology is nanotechnology. In this introductory talk, which is aimed at young minds, I will introduce the topic of nanotechnology and its many uses in health care and other fields of life. I will show how it is going to change your life, and how it has already begun to do so in various ways. Human health care products arising from nanotechnology are having the most significant impact, but I will mention other too. I will give several examples from my own research work to inspire you to consider a career in this exciting field. I will give a broad overview of several of our ongoing investigations in the area of nano-biotechnology and nano-bioengineering with health care applications as the focus. Nanomedicines, in particular, have proven their advantages in many modern medicinal molecules, where they often show significantly improved performance. We show our ability to deliver medicines for retinal cancer directly through the eye, and for lung disease through the nose. I will show the importance of modern tools like electron microscopy in this field of work. Using electron microscopy methods, together with other modern analytical methods like atomic spectroscopy, we show that traditional medicines like Ayurvedic ones, and alternative medicines like Homeopathic ones also have nanoparticles in them. Nanoparticles show improved biological activity. In Homeopathic medicines, a controversy has existed regarding the high dilutions used (one part in 10 raised to 400 parts) during manufacture, which goes against Avogadro's number and the molecular basis of matter, ruling out the possibility of presence of any starting material of medicine in the highly diluted finished product. Because of this, the molecular basis of the medicinal action of the drug was always in doubt. Using electron microscopy, we show for the first time that nanocrystals of the starting materials are present in the final product despite the extremely high dilutions. These studies in the materials science of various medicinal systems, could pave the way for new medicines and better health for all. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

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