

Robotics and Automation & Biomaterials and Nanomaterials

October 22-23, 2018 | Frankfurt, Germany

Nanomedicinal constituents in herbal plants and species impact as antioxidant

Mohamed Sikkander A

Velammal Engineering College, India

Nanomedicine is a young science. How nanotechnology can be used to medicine, medical technology and pharmacology has only been researched since the 1990s. Nanotechnology itself has only existed for a few decades. After the invention of high resolution microscopy it evolved simultaneously in biology, physics and chemistry in the course of the 20th century and spawned new disciplines such as microelectronics, biochemistry and molecular biology. For nanomedicine, nanobiotechnology knowledge which investigates the structure and function of cells as well as intra and intercellular processes and cell communication is of prime importance. This research only became possible at the beginning of the 20th century when the door to the nanocosmos was burst open with the invention of innovative microscopes. Herbal medicines have been widely used around the world since ancient times. The advancement of photochemical and phytopharmacological sciences has enabled elucidation of the composition and biological activities of several medicinal plant products. The effectiveness of many species of medicinal plants depends on the supply of active compounds. Most of the biologically active constituents of extracts, such as flavonoids, tannins, and terpenoids, are highly soluble in water, but have low absorption, because they are unable to cross the lipid membranes of the cells, have excessively high molecular size, or are poorly absorbed, resulting in loss of bioavailability and efficacy. Some extracts are not used clinically because of these obstacles. It has been widely proposed to combine

herbal medicine with nanotechnology, because nanostructured systems might be able to potentiate the action of plant extracts, reducing the required dose and side effects, and improving activity. Nanosystems can deliver the active constituent at a sufficient concentration during the entire treatment period, directing it to the desired site of action. Conventional treatments do not meet these requirements. The purpose of this study is to review nanotechnology-based drug delivery systems and herbal medicines. Natural products have been used in medicine for many years. Many top-selling pharmaceuticals are natural compounds or their derivatives. These plant or microorganism-derived compounds have shown potential as therapeutic agents against cancer, microbial infection, inflammation, and other disease conditions. However, their success in clinical trials has been less impressive, partly due to the compounds' low bioavailability. The incorporation of nanoparticles into a delivery system for natural products would be a major advance in the efforts to increase their therapeutic effects. Recently, advances have been made showing that nanoparticles can significantly increase the bioavailability of natural products both in vitro and in vivo. Nanotechnology has demonstrated its capability to manipulate particles in order to target specific areas of the body and control the release of drugs. Although there are many benefits to applying nanotechnology for better delivery of natural products, it is not without issues.

e: fengppj@ku.ac.th



Notes: