

Nano 2020: Nanotechnology in development of botanical source drugs against Covid-19; Challenges and issues - Mansoureh Nazari V - University Sains Malaysia

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Coronavirus is causing life-threatening disease since 2019 (COVID-19). It is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that has been considered as pandemic. Treatment of COVID-19 is basically supportive. Since COVID-19 outbreak, different herbal products (standardized extracts) with promising results have been used individually or along with conventional drugs to treat infected patients. Interestingly, some products may block the ACE-2 receptor. In addition, natural products were shown to inhibit the COVID-19 life-cycle related proteins such as papain-like or chymotrypsin-like proteases. Some of others have strong anti-inflammatory effects. However the main problem with herbal based products is their low bioavailability and so decreased in vivo therapeutic effects. Development of biocompatible Nano formulations, as novel carriers of drug molecules or compounds with pharmacological interest, is a technology that provides different applications. Specifically the use of formulations for enhanced delivery, based on nanotechnology, is an important field. Such novel systems of drug delivery including Nano dispersions such as micro emulsions and nanoemulsions, lipid nanocarriers, liposomes, niosomes, and dendrimers emerged as interest of many research groups. Potential benefits of improved drug delivery consist of reducing drug's side effects and maintain drug concentration in target site continuously. Moreover, protection of the drugs from chemical or metabolic modification, throughout their route toward the target cell with enhanced bioavailability is very much concerned. We suggest challenges and issues in enhanced delivery systems of natural products with the potential to be used alone or in combination as alternative medicines to treat/prevent COVID-19 infection

Introduction

Drug nanotechnology is an arising innovation that can be utilized in a wide scope of items, including clinical, food, and makeup. These items are the ones in the nanoscale range, with sizes going from 1 to 1000 nm. They may have diverse substance or actual properties or natural impacts when contrasted with items with a bigger scope. As of now, there are 8879 nanotechnology items enrolled in the Nanotechnology Products Database, of which 2467 organizations are answerable for the creation, spread in 62 nations around the world (Nanotechnology Products Database 2020).

Nanotechnology permits the expansion of the bioavailability of a medication, just as decrease of the portion and improvement of the restorative impact, notwithstanding the abatement of its poisonousness. In the food region, it tends to be utilized in the creation of food bundling, microbiological security, or

improved conveyance of a useful fixing or supplement. Plus, it can likewise be applied in the location of microorganisms. Right now, as will be definite in this original copy, a few Nano systems are being created and tried in the most assorted zones, for example, virology, medication, science, biomedical, drug, designing, computational science, and mechanical, zeroing in on the advancement of defensive and avoidance gear for SARS-CoV-2, just as in the analysis and therapy of COVID-19.

Coronavirus is an irresistible illness brought about by the SARS-CoV-2 infection, having a place with the Covid family. It was liable for the pandemic episode that started in China in 2019 and has been influencing the world, tainting 21,294,845 individuals and causing 761,779 passings (information acquired on August 16, 2020). Presently, there is no helpful decision accessible that represses the multiplication of the infection, which has caused an episode in wellbeing frameworks, driving great many individuals to be hospitalized, requiring mechanical respirators, since the infection has high appeal to the respiratory framework.

Notwithstanding stuffing in the wellbeing framework, uncovering wellbeing experts who are on the cutting edge against the pandemic, the economy has felt a critical effect because of the assurance of the World Health Organization, which accentuates that social removing, is the principle type of counteraction against the infection, trying not to swarm just as contact between individuals.

In spite of the difficulties in finding the most reasonable treatment and the most ideal approach to lessen transmission of the infection, drug nanotechnology can be a significant device. Zeroed in not just on the advancement of immunizations and medications with infection focusing on yet in addition on the improvement of gear that limits individuals' introduction to infections and permitting their security, keeping up the day by day schedule of every individual on the planet. The data pretty much all nanotechnological items utilized in this original copy was gathered from the Nanotechnology Products Database Web website. This particular site helps the dispersal of nanotechnological items that are being created and tried to be embedded on the lookout.