Nanotechnology in development of botanical source drugs against Covid-19; Challenges and issues

Mansoureh Nazari V
Universiti Sains Malaysia, Malaysia

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-inflimmatory effects. However the main problem with herbal based products is their low bioavailability and so decreased *in vivo* therapeutic effects. Development of biocompatible nanoformulations, 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 nanodispersions such as microemulsions and nanoemulsions, lipid nanocarriers, liposomes, niosomes, and dendrimers emerged as interest of many research groups. Potential benefits of improved drug delivery consists of reducing drug's side effects and maintain drug concentration in target site continiously. Moreover, protection of the drugs from chemical or metabolic modification, throughout their route toward the target cell with enhanced bioavailability is very much concenrened. 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.

Biography

Mansoureh was industrial attached scholorship student during her master and PhD. She has completed her PhD in early 2019 from Universiti Sains Malaysia. Her first Eauropean patent has been published online in 2019 entitled "EXTRACT OF ORTHOSIPHON STAMINEUS, FORMULATIONS, AND USES THEREOF" with Patent number of WO2019087084 (A1). She used nanotechnology platform in development of herbal product for wound healing and won NiCeRs'18 gold medal in Politeknik Tuanku Sultanah Hi-Tech competetion in Malaysia in 2018. She has published more than 15 papers in reputed journals and collaborates with scientific journals.