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The future products: Antimicrobial potential of biomimetic synthesized nanoparticles

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In the present scenario, there are growing concerns over the potential impacts of bioengineered nanoparticles in the health sector. However, our understanding of how bioengineered nanoparticles may affect organisms within natural ecosystems lags far behind our rapidly increasing ability to engineer novel nanoparticles. To date, research on the biological impacts of bioengineered nanoparticles has primarily consisted of controlled lab studies of model organisms with single species in culture media. Here, we described a cost effective and environment friendly technique for green synthesis of silver nanoparticles. Silver nanoparticles were successfully synthesized from 3 mM AgNO₃ via a green synthesis process using leaf extract as reducing as well as capping agent. Nanoparticles were characterized with the help of UV-Vis absorption spectroscopy, X-ray diffraction and TEM analysis which revealed the size of nanoparticles of 35 nm size. Further the nanoparticles synthesized by green route are found highly toxic against pathogenic bacteria and plant pathogenic fungi viz. *Escherichia coli*, *Pseudomonas syringae* and *Sclerotinia sclerotiorum*. The most important outcome of this work will be the development of value-added products and protection of human health from pathogens viz., bacteria, virus, fungi etc.

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Access to orphan drugs: A Malaysian perspective

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In the Malaysian context, challenges faced by patients with rare diseases amongst others include delayed treatment due to late diagnosis, limited availability to genetic medicine services and high treatment costs which have a significant bearing on access to these medicines. Recognizing the needs of patients with rare diseases, the National Medicines Policy states that there shall be appropriate procedures to enhance accessibility of life-saving products and orphan medicines without compromising safety, quality and efficacy. The Ministry of Health (MOH) is in the process of drafting the Malaysian Guidelines for the Management of Orphan Drugs which will provide a framework for the effective management of orphan drugs for all relevant stakeholders. It will address issues pertaining to the designation, regulation, marketing and procurement procedures for orphan drugs and will serve to increase availability of non-commercially viable products without compromising on patient safety. The major issue however, being faced by MOH is on the question of affordability. Healthcare in the public sector is highly subsidized by the government and patients almost never pay for medicines listed in the MOH drug formulary. As it is a challenge to do a pharmacoeconomic evaluation and budget impact analysis on drugs used for rare diseases, most of these drugs are not listed in the MOH formulary and are procured through special approval processes. With the advent of more drugs being approved for the management of rare diseases and the expansion of genetic medicine services in the country, ensuring access to these lifesaving medicines has taken on a new dimension. Options such as managed entry agreements, increased private-public partnerships and international collaborations may be the way forward to ensure timely, sustainable access to safe, efficacious and cost effective medicines in the management of rare diseases.

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