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Promising antiviral, antimicrobial and therapeutic properties of green nanoceria

Tuesday, 23 March 2021 16:00 (20 minutes)

Aim: To demonstrate synthesis of cerium oxide nanoparticles (CeO₂ NPs) by a green method using *Hyphaene thebaica*, and investigate their therapeutic applications. **Materials & methods:** Structural, vibrational and luminescent properties were established using x-ray diffraction, Fourier transformed infrared spectroscopy, Raman spectroscopy, ultraviolet absorption spectroscopy, selected area electron diffraction, electron microscopy and photoluminescence spectroscopy. **Therapeutic properties** were established using different in vitro assays. **Results:** CeO₂ NPs were determined to be crystalline in nature with a grain size of approximately 14 nm. They had characteristic Ce–O vibration at 481 cm⁻¹. Photoluminescence spectra revealed broad bands at 463 and 600 nm. ζ potential was recorded as -17.2 mV. Potent antimicrobial and antiviral properties with hemocompatibility were reported. **Conclusion:** Biosynthesized CeO₂ NPs revealed multifunctional therapeutic properties.

Primary author: MOHAMED, Hamza (iThemba LABS/UNISA)

Presenter: MOHAMED, Hamza (iThemba LABS/UNISA)

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