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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 (CeO<sub>2</sub> 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:** CeO<sub>2</sub> 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<sup>-1</sup>. Photoluminescence spectra revealed broad bands at 463 and 600 nm.  $\zeta$  potential was recorded as -17.2 mV. Potent antimicrobial and antiviral properties with hemocompatibility were reported. **Conclusion:** Biosynthesized CeO<sub>2</sub> NPs revealed multifunctional therapeutic properties.

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