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### Cytotoxicity studies on activated carbon prepared from plant derivatives

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Activated carbon (AC) is a common adsorbent which is used in artificial and bioartificial liver devices. Carbon nanoparticles are extensively used in biomedical applications including biomedical devices. In the present work, toxicity studies were conducted to check the efficiency of carbon nanoparticles prepared from plant derivatives - date pits of *Phoenix dactylifera* fruits, *Simmondsia chinensis* (jojoba) seeds and *Scenedesmus* sp. (microalgae). To prepare carbon nanoparticles from plant derivatives, physical activation methods were used. Screening of cytotoxicity assay with carbon nanoparticles on hepatocytes namely, THLE2 (normal cells) and Hep G2 (cancer cells) were conducted. DLS and Zeta potential of carbon nanoparticles conducted

to check the solubility and stability of the particles. In the biological assays, cytotoxicity test of the THLE2 cells and Hep G2 cells showed that viability remained closed to 100% when exposed to carbon nanomaterials. MTT in vitro analysis indicated that date pit AC had the least effect on the viability of both THLE2 and HepG2 cells compared to jojoba seeds and microalgae. Fluorescent microscopy confirmed date pits AC as the best choice to preserve liver cells' integrity. The findings of this study proposes that the date pits-based AC can be introduced as a novel alternative biomaterial for the removal of protein-bound toxins in bioartificial liver devices.

### Biography

Betty Titus Mathew has completed her Masters in Applied Microbiology from Periyar University, India and pursuing Ph.D. in Cellular and Molecular Biology from Department of Biology, College of Science, UAE University, UAE. She is working as a Research Assistant in the Department of Mechanical Engineering. She has two papers published of her thesis and has presented one for conference.

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