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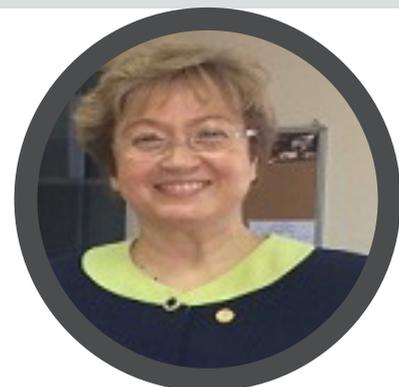
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THYMOQUINONE-BASED NANOFORMULATIONS FOR CANCER TREATMENT

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Cancer is the second leading cause of mortality worldwide. The acquired resistance of chemotherapy necessitates using new approaches for anticancer drug discovery. There is growing interest in using plants as a source of anticancer agents due to their minimal toxicity to normal cells. Non-specific drug targeting and the many challenges faced by anticancer drug delivery have been overcome by nano formulations of these drugs. Thymoquinone has been shown to inhibit cancer progression selectively in many cancer systems both *in vitro* and *in vivo*. Despite the promising anticancer properties of TQ, its clinical translation is halted by its hydrophobicity, poor bioavailability, limited solubility and high binding capacity to plasma proteins. This can prevent TQ from reaching its targeted tumor sites. Several (TQ-NP) formulations have been shown to have enhanced anticancer activities in comparison to free TQ. We have recently described a novel TQ formulation that has improved activity over free TQ in breast cancer cell lines. The efficacy of the TQ-NP formulation depended on the time for drug uptake, drug concentrations, route of entry and trafficking and cellular interactions. In this presentation, I will focus on the different nanoparticle formulations of the anticancer compound Thymoquinone (TQ-NP) derived from black seed. I will discuss the characteristics and applications of these TQ-NP formulations and highlight the successes and limitations for developing biologically relevant models.



Biography

Hala Muhtasib is Professor of Cell Biology at the American University of Beirut. She received her PhD from Kansas State University, USA in 1990. Her research interests are in cancer chemotherapy and anticancer mechanisms of plant-derived compounds. She has over 90 publications in peer-reviewed journals and is the recipient of four research achievement awards.

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