World Academy of Science, Engineering and Technology
International Journal of Materials and Metallurgical Engineering
Vol:9, No:07, 2015

Release of Calcein from Liposomes Using Low and High Frequency Ultrasound

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Abstract : This abstract aims to investigate the use of targeted liposomes as anticancer drug carriers in vitro in combination with ultrasound applied as drug trigger; in order to reduce the side effects caused by traditional chemotherapy. Pegylated liposomes were used to encapsulate calcein and then release this model drug when 20-kHz, 40-kHz, 1-MHz and 3-MHz ultrasound were applied at different acoustic power densities. Fluorescence techniques were then used to measure the percent drug release of calcein from these targeted liposomes. Results showed that as the power density increases, at the four frequencies studied, the release of calcein also increased. Based on these results, we believe that ultrasound can be used to increase the rate and amount of chemotherapeutics release from liposomes.

Keywords : liposomes, calcein release, high frequency ultrasound, low frequency ultrasound, fluorescence techniques
Conference Title : ICNOP 2015 : International Conference on Nanotechnology, Optoelectronics and Photonics
Conference Location : Stockholm, Sweden
Conference Dates : July 13-14, 2015