

ABSTRACT

Biodistribution of Coumarin-6-Labeled Ursolic Acid Niosomes with Chitosan Layer in Mice Induced with N-Nitrosodiethylamine

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Ursolic Acid (UA) is a pentacyclic triterpenoid compound that effectively inhibits tumor growth through modulation of apoptosis, inhibition of cell cycle, and autophagy. However, UA has poor water solubility and permeability. Niosomes have been reported to improve the bioavailability of low water-soluble drugs. This study aimed to evaluate the *in vivo* biodistribution of coumarin-6-labeled UA-niosomes modified with chitosan layers. UA niosomes were prepared using a thin layer hydration method, then chitosan was added by vortexing the mixtures. The biodistribution was then determined in a liver cancer model of mice induced with hepatocarcinogenic N-Nitrosodiethylamine. The results showed the addition of chitosan layers increased the particle sizes and ζ -potentials of AU niosomes. The presence of chitosan layer produced higher plasma levels of coumarin-6-labeled AU niosomes than that of without chitosan addition. Moreover, the photomicrographs of the organs revealed that UA niosomes with the chitosan layer were highly accumulated in the liver. It can be concluded that the chitosan layer successfully improved plasma level and liver accumulation of AU niosomes.

Keywords: Ursolic Acid, Niosomes, Liver Cancer, Biodistribution