

ABSTRACT

Hepatocellular carcinoma (HCC) is second major cause of cancer related mortality in the world. The important risk factors of HCC are involved hepatitis B & C, cirrhosis or fibrosis, smoking and alcohol consumption. Chemotherapy and radiotherapy were used for HCC treatment but they had many drawbacks such as non-specific delivery of anticancer drug, multiple drug conflict, less ability to monitor healing response and insufficient concentration of medicines reach to cancer cells. All these problems are solved by nanotechnology, as it has the potency of selectivity and approaches for the removal of malignant cell without affecting normal cells. In cancer nanotechnology, the nanoparticles are specifically targeted for tumor cell through passive and active targeting. CCl_4 is a well-known hepatotoxin, used for induction of hepatotoxicity. The nanoparticles of doxy-AuNPs and doxy-Au-AgNPs both were used for the treatment of liver cancer. The nanoparticles were characterized by using UV-spectroscopy and FTIR (Fourier Transform Infra-red). Both nanoparticles were exhibited anticancer activity, but hybrid nanoparticles (doxy-Au-AgNPs) showed best results, determined by different biochemical parameters (ALAT, ASAT, ALP, GSH, LDH, MDA, catalase, total bilirubin and total protein) by serum levels and histopathological analysis.

Key words: Hepatocellular carcinoma (HCC), chemotherapy, nanotechnology, gold nanoparticles, silver nanoparticles, doxycycline, hybrid formation, targeted drug delivery.

