# Protective effect of quercetin on diethylnitrosamine induced hepatocellular cancer in male wistar rats

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## ABSTRACT

Diethylnitrosamine (DEN), found in many commonly consumed foods, is widely reported to induce cancer in animals and humans. Hepatocellular carcinoma (HCC), is a primary malignancy of the hepatocyte, induced by DEN, accounts for a high incidence in western countries and to some extent in Asia and Africa. Adriamycin (Doxorubicin), an anthracycline antibiotic, is a widely used anticancer agent to treat solid tumors. The use of doxorubicin in clinical chemotherapy is limited, due to diverse toxicities, in spite of its high antitumor efficacy. The aim of the present study was to investigate the hepatoprotective role of quercetin along with adriamycin against diethylnitrosamine induced liver cancer in male wistar rats. Quercetin is one of the most abundant dietary flavonoid found in apples, black and green tea, onions, raspberries, red wine, red grapes, cherries, citrus fruits, broccoli and other green leafy vegetables. Quercetin offers several potential therapeutic uses in the prevention of CVD, cancer, cataract, schizophrenia and prostatitis. Quercetin, a ubiquitous bioactive flavonoid, can inhibit the proliferation of cancer cells.In the present study, we evaluated the anti-tumor potential of quercetin (100 mg/kg, orally), and adriamycin (10 mg/kg, i.p.) alone and in combination for a period of 15 days against DEN induced hepatocellular carcinogenesis in male wistar rats. The animals were divided into control, DEN treated, DEN + adriamycin treated, DEN + adriamycin and quercetin treated and DEN + quercetin treated. DEN treatment to rats resulted in significantly elevated levels of serum aspartate transaminase, alkaline phosphatase, lactate dehydrogenase along with significant decrease in the levels of the marker enzymes in the liver tissue which are indicative of hepatocellular damage. Quercetin treatment significantly improved the levels of marker enzymes of hepatotoxicity, resulting in the reversal of most of the parameters studied and also improved the efficacy of the standard anticancer drug adriamycin.





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