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Title: ANTI-TUMOR EFFECTS OF BEE HONEY ON PCNA AND P53 EXPRESSION IN THE RAT HEPATOCARCINOGENESIS

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Abstract

In the present study, the bee honey was used as pharmaceutical agent on the carcinogenesis induced by Diethylnitrosamine (DEN) in liver of Sprague Dawley rats. Four groups of animals were used and fed *ad libitum.* The first group was a control; the honey group was fed *ad libitum* and given orally 2 g honey/rat/day. The 3rd group was intraperitoneally injected with a single dose of DEN 150 mg/ kg b.wt. 4th group was intraperitoneally injected with DEN and after one week, the each rat was given 2 g honey until experiment termination. After six months all animals in different groups were sacrificed. The results of the present study observed that Honey treated rats showed normal liver histology, immunohistochemistry as seen in normal liver of control rats but DEN injected group produced a variety of lesions ranging from severe inflammatory reaction to liver carcinogenesis compared to the control groups. PCNA and P53 expression were significant nuclear positive staining in DEN group ($p<0.05$). These results showed that supplementation of diet with honey has a protective effect against DEN -induced, inflammatory response and carcinogenesis in rat liver. So, the present study suggested that using honey is the useful therapeutic agents in hepatocarcinogenesis in rats.

Key words: Hepatocellular carcinoma, P53, PCNA, immunostaining, DEN