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Antineoplastic effects of bee honey and Nigella sativa on hepatocellular carcinoma cells

Mahmoud I Hassan [1], Gamal M Mabrouk, Hanan H Shehata, Marwa M Aboelhussein

Affiliations

Affiliation

1 Ain Shams University, Egypt.

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Abstract

Objectives: To evaluate in vitro antitumor effects of bee honey (BH) and Nigella sativa (NS) on HepG2 through their antioxidant and apoptotic activities.

Methods: HepG2 cell line was treated with different concentrations of diluted unfractionated BH and different concentrations of alcohol extract of NS. Exposure lasted for different time durations (6-72 hours), both dose-response and time course-response were conducted. Cell viability was tested by trypan blue exclusion test. Total antioxidant status and caspase-3 activity were estimated in the cell lysate. Nitric oxide levels were measured in culture supernatants of both treated and untreated HepG2 at all indicated times.

Results: Treatment of HepG2 cells with BH and NS leads to a significant decrease in both the number of viable HepG2 cells and the levels of nitric oxide on one hand, but improvement of the total antioxidant status and caspase-3 activity on the other, especially in HepG2 cells treated with higher doses of BH and NS (20% and 5000 µg/mL, respectively) and for longer duration (72 hours).

Conclusions: BH and NS are effective in reducing the viability of HepG2 cells, improving their antioxidant status and inducing their apoptotic death.

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