

Sider Bee Honey: Antitumor Effect in Some Experimental Tumor Cell Lines

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Abstract : Sider honey is a type of honey produced by bees feeding on the nectar of Sider tree, *Ziziphus spina-christi* (L.) Desf. Honey is an effective agent for preventing, inhibiting and treating the growth of human and animal cancer cell lines in vitro and in vivo. The aim of the present study was to evaluate the impact of different dilutions from crude Sider honey and different duration times of exposure on the growth of six tumor cell lines (human cervical cancer cell line, HeLa; human hepatocellular carcinoma cell line, HepG-2; human larynx carcinoma cell line, Hep-2; brain tumor cell line, U251) as well as one animal cancerous cell line (Ehrlich ascites carcinoma cells line, EAC) and one normal cell line, *Homo sapiens*, human, (WISH) CCL-25. Different concentrations and treatment durations with Sider honey were tested on the growth of several cancer cell lines types. Histopathological changes in the tumor masses, animal survival, apoptosis and necrosis of the used cancer cell lines (using flow cytometry) were evaluated. Sider honey was administered either to the tumor mass itself by intratumoral injection or via drinking water. One-way ANOVA test was used for the analysis of (the means + standard error) of the optical density obtained from the Elisa reader and flow cytometry. The study revealed that different concentrations of Sider honey affected the growth patterns of all the studied cancer cell lines as well as their histopathological changes, and it depended on the cell line nature and the concentration of honey used. It is obvious that the relative animal survival percentage (bearing Ehrlich ascites carcinoma, EAC cells) was proportionally increased with the increase in the used honey concentrations. The study of apoptosis and necrosis using the flow cytometry technique emphasized the viability results. In conclusion, Sider honey was effective as antitumor agent, in the used concentrations.

Keywords : antitumor, honey, sider, tumor cell lines

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