

## Evaluation of *Lavandula angustifolia* cytotoxic and apoptotic effects on human cervical cancer cell line (Hela) in compare with normal cells

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**Background and Amis:** In this research toxic and apoptotic effects of *Lavandula angustifolia* three different extracts (ethanol, ether de petrol, water) and its essential oil were investigated on Hela cell lines and human blood lymphocytes.

**Methods:** Malignant and non-malignant cells were cultured in RPMI 1640 medium and incubated with different concentrations of plant extracts and essential oil. Cell viability was quantitated by MTT assay. Apoptotic cells were determined using propidium iodide staining of DNA fragmentation by flow cytometry (sub-G1 peak). The molecules involved in apoptotic signal translation, including Bax, and PARP were detected by Western blot.

**Results:** The growth of malignant cells was inhibited by essential oil, ethanol and ether de petrol extracts in a concentration and time-dependent manner after 48 h, respectively. In Hela cell line apoptosis was evidenced by accumulation of DNA in the sub-G(1) phase of cell cycle. Also Bax expression and cleavage of PARP were induced by ethanol and ether de petrol extracts in Hela cells compared to control.

**Conclusions:** Cytotoxic effects of *L. angustifolia* on cervical carcinoma cell lines could be considered as a potential chemotherapeutic agent in cancer treatment but further researches are needed to evaluate its properties of cytotoxic effects on some other malignant and non-malignant cell lines.

**Keywords:** *Lavandula angustifolia*; Cytotoxicity; Apoptosis