

The Cytotoxicity of *Eupatorium cannabinum* Methanolic Extract in a Human Breast Adenocarcinoma Cell Line (MCF-7)

Yasaman Shahtaghi^{a,b}, Maryam Hamzeloo-Moghadam^c, Saeid Mohammadi motamed^a, Somayeh Esmaeili^{c*}

Authors' Affiliations:

^a Department of Pharmacognosy, Faculty of Pharmacy, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran (IAUPS).

^b Herbal Medicine Research Center, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran (HMRC).

^c Traditional Medicine and Materia Medica Research Center, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract Presenter:

Yasaman Shahtaghi; Faculty of Pharmacy, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran.

E-mail: yas.shahtaghi@gmail.com

*Correspondence:

Somayeh Esmaeili; Pharm.D.; Ph.D. Associate professor; Traditional Medicine & Materia Medica Research Center, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences P.O.Box 14155-6354, Tehran, Iran.

Email: sesmaeili@sbmu.ac.ir

Abstract

Introduction: *Eupatorium cannabinum* belonging to Asteraceae family is commonly known as *hemp agrimony*. *E. cannabinum* is used to treat headache, hepatitis, diarrhea, diabetes mellitus and hypertension. Considerable researches have been indicated various biological activities of *E. cannabinum* such as cytotoxic, antioxidant, antimicrobial, anti-inflammatory, immunological and hepatoprotective activities. Since the cytotoxic activity of *E. cannabinum* on human breast adenocarcinoma cell line (MCF-7) have not been reported, the current study was conducted to evaluate the cytotoxicity of the total extract of *E. cannabinum* on MCF-7 cells.

Methods and Results: MCF-7 cell line was treated with different concentrations (3.125 to 100 $\mu\text{g/mL}$) of the *E. cannabinum* total (methanolic) extract. After 48 hrs, the cytotoxic activity was assessed through MTT (3-[4, 5-Dimethylthiazol-2-Yl]-2, 5-diphenyltetrazolium bromide) assay. The methanolic extract demonstrated cytotoxicity against MCF-7 cell line with IC_{50} (the concentration that inhibited cell growth by 50%) value of 69.5 $\mu\text{g/mL}$.

Conclusions: The methanolic extract of *E. cannabinum* showed considerable cytotoxic activity. Evaluating the apoptosis induction ability of *E. cannabinum* could be suggested for further studies.

Key words: Cytotoxic; *Eupatorium cannabinum*; MCF-7; MTT assay

Grants: Traditional Medicine and Materia Medica Research Center, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.