

The Antimicrobial Effect of Methanol Extracts of *Eucalyptus*, *Satureia Hortensis* and *Heracleum Glabrescens* on *Giardia* Cysts

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Abstract

Background and objectives: Giardiasis is a parasitic infection of small intestine, with a worldwide distribution and the prevalence of *Giardia* in different parts of the world varies between 1 to 25%. Plants have the vast range of antimicrobial and antifungal activity that can be identified as alternative treatments for bacterial and parasitic pathogens, the same as *Giardia*. In this study, the methanol extracts of *eucalyptus* plants, *Satureia hortensis* and *Heracleum glabrescens*, on *Giardia* cysts were studied in vitro.

Material and Methods: The cysts were isolated from the feces using a modified Bingham. After counting by Hemacytometer, they were placed near by 200 mg/ml, 100 mg/ml and 10 mg/ml of the extracts prepared by DMSO for 30 and 60 minutes. Then, the number of dead and live cysts was counted under a microscope.

Results: the fatality effect of the extracts in 60 minutes is higher than those of 30 minutes. The methanol extracts of *Satureia hortensis*, *Eucalyptus* and *Heracleum glabrescens* with the dilution of 200 mg/ml in 60 mins have the fatality effect of 84.3%, 63.3% and 44%, respectively. The highest fatality(84.3%) on *Giardia* cysts is related to *Satureia hortensis* with the dilution of 200 mg/ml in 60 mins and the Lowest(27%) is related to *Heracleum glabrescens* with the dilution of 10 mg/ml in 30-minute period. The significant relationship between the plant type and the fatality of methanol extracts is observed.

Conclusion: the methanol extracts of *Eucalyptus*, *Heracleum glabrescens* and especially *Satureia hortensis* have anti-parasitic effects in the laboratory conditions. Thus, they can be used in the future, instead of the chemical antiparasitic drugs.

Key words: *Giardia lamblia* cysts, *Eucalyptus*, *Satureia hortensis*, *Heracleum glabrescens*, Tonekabon