Ministry of Higher Education
and Scientific Research
AL-Muthanna university
College of Science

Study the biological effect of *Punica granatum* and *Thymus vulgaris* extracts on parasite *Giardia lamblia* in experimentally infected white mice Balb/c

A thesis

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By

Fatima Yousif Kattan

Al-Ghanimy

(B. Sc. Biology 2009)

Supervised by

Assist. Prof. Dr.

Yassir Dakkeel Kremsh Alasadiy

Assist. Prof. Dr.

Kasim Mohammad Hello

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Summary

This study was conducted from the period from November 2011 till July 2012 in a laboratory of Postgraduate Studies at Al- Muthanna University, It was included the purification of cystic stage of *Giardia lambila* from feces samples. The study was also included the development of this parasite in TYI-S-33 modified medium, which proved successfully growth of the parasite. It was observed that the trophozoite stage remaining until the tenth day, While the cystic stage remains for seventh days only.

The laboratory mice infection were take place oral dose administration of parasite and daily microscopic stool examination was shown an incidence within 10 days. The blood Parameters (Haemoglobin concentration, PCV, the total number of white blood cells) for infected mice were evaluated. It was round that a decrease in haemoglobin concentration in approx 4.84 (g/100 ml of blood). It was also found that an decrease in hematocrit in approx 22.8%. An increase in the total number of white blood cells in infected mice was observerved and found to be approx 11.4×10^3 (cells / ml^3 blood).

The median lethal dose (LD_{50}) was calculated for hot aqueous and alcoholic extracts for thyme leaves (*Thymus vulgaris)*, and found to be (9.7 and 11.2) g / kg of body weight respectively. The changes in histo-pathological in the liver, spleen, kidney and small intestine were studied and these effects was found in high concentration. The stool samples containing parasite has been obtained from AL- Rumaitha General Hospital and women and children Hospital in AL- Muthanna city, to bring the infection in mice. The main aim of this study was about the using of hot aqueous and alcoholic extracts of both plants (Pomegranates) *Punica granatum* and (Thyme) *T. vulgaris* as a therapy for parasite *In vivo* instead of the drug Flagyl (Metronidazole). Which was used for this

purpose. Three concentrations of each extract (1000, 1500, 2000) mg / kg were used, in addition to mixed from the lowest concentration of extraction and Flagyl drug concentration 125 mg / kg. All extractions were shown good termnate *G. lambilia*, It was also observed that the time required to termnate the parasite and found to be inversely proportional with the increases of the extract concentration. It was deducated that the concentration of 2000 mg / kg of aqueous extraction and alcoholic from epicarp and pith of pomegranate was termenate of *G. lambilia* with duration less than that usual periods to kill the parasite in concentrations of (1000, 1500, 1000 + Flagyl, Flagyl concentration 200 mg / kg). The time was determine by 3 days. The concentration (2000) mg / kg from the hot aqueous and alcoholic extracts of thyme leaves was termenate the *G. lambilia* during 4 days. which is less than the periods necessary to kill the parasite when the concentrations of (1000, 1500, 1000 + Flagyl) were used. It was observed that the hot aqueous and alcoholic extracts for epicarp and pith of pomegranate and thyme leaves (*T.vulgaris)* clearly impact in the mice weights (indicated of before and after treatment). Although the concentration of 2000 mg / kg of alcoholic extraction of leaves thyme (*T. vulgaris*) has a clearly impact on the mice weight in compared with other concentration.