



SYNERGISTIC ANTHELMINTIC ACTIVITY OF DIFFERENT COMPOSITION OF VOLATILE OIL OF EUCALYPTUS AND GINGER ON *PHERITIMA POSTHUMA*.

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ABSTRACT

Synergistic effect of different composition on eucalyptus and ginger oil were evaluated for anthelmintic activity. The albino rat were divided into 9 groups and were administered orally different ratios of eucalyptus and ginger oil 1:1, 1:2, 1:3, 2:1 and 3:1 ratios, control and standard (Albendazole). Result was expressed as mean $\pm$ SE. ANOVA followed by Dunnett's multiple "t" tests. P values < 0.05 (95% confidence limit) was considered statistically significant, using software Graph Pad Prism6 and found to be comparable with that of standard drug albendazole. Different composition of eucalyptus and ginger oil in the ratio of 1:2,1:3 exhibited more effective anthelmintic activity as compared to eucalyptus and ginger oil alone.

KEYWORDS: Anthelmintic, Eucalyptus and ginger oil, Albendazole, DMSO, tween 80, *Pheritima posthuma*.

INTRODUCTION

Helminthes are the very common infections in man, which affect the large proportion of the population. This is Parasitic diseases which may cause severe morbidities including lymphatic filariasis (a cause of elephantiasis) and schistosomiasis. Development of resistance to most of commercially available anthelmintic became a severe problem worldwide.^[1]

Zingiber officinale Linn. (Zingiberaceae), commonly known as "Adrak", is an herbaceous rhizomatous perennial plant, reaching up to 90 cm in height under cultivation. Rhizomes are aromatic, thick lobed and pale yellowish in color. Leaves are long and 2-3 cm broad with sheathing bases, simple, alternate, distichously narrow, oblong and lanceolate. The blades are gradually tapering to a point. The herb develops several lateral shoots in clumps which begin to dry when the plant matures. Inflorescence is solitary, lateral radical, pedunculate, oblong and has cylindrical spikes.^[2]

MATERIAL AND METHODS

Volatile oils and drug

Volatile oils of eucalyptus (*Eucalyptus globules*) and ginger are used in this study. All the oils are collected by cleverger's apparatus and their assessable tests are carried out. Albendazole are purchase from Azamgarh and all other solvent and chemicals used during experimental protocol are of analytical grade.

Experimental design

For all experiments the animals are randomly divided into nine groups of (n=6) six animals each.

Group I: Control

Group II: Treated With Eucalyptus oil.

Group III: Treated With ginger oil

Group IV: Treated With Eucalyptus and ginger oil ratio 1:1

Group V: Treated With Eucalyptus and oil ginger ratio 1:2

Group VI: Treated With Eucalyptus and ginger oil ratio 1:3

Group VII: Treated With Eucalyptus and ginger oil ratio 2:1

Group VIII: Treated With Eucalyptus and ginger oil ratio 3:1

Group IX: Standard Treated With Albendazole

All the animals are treated with eucalyptus and ginger oils. Helimenths were kept for 30 min. and after 1hr. to 5hr. of treatment the evaluation of activities were performed.

ANTHELMINTIC ACTIVITY

Adult earth worms (*Pheretima posthuma*) were collected. Earth worms were thoroughly washed with normal saline to remove the adhering material. divided into 9 groups control(dil. Water, DMSO, Tween 80), standard (Albendazole), different ratios 1:1,1:2,1:3,2:1 and 3:1, Eucalyptus and ginger oil. Petridishes of equal size were collected then time taken for the induction of paralysis (motion less) and complete death of earth worms was

noted. The experiment was repeated thrice and confirmed the readings.^[4]

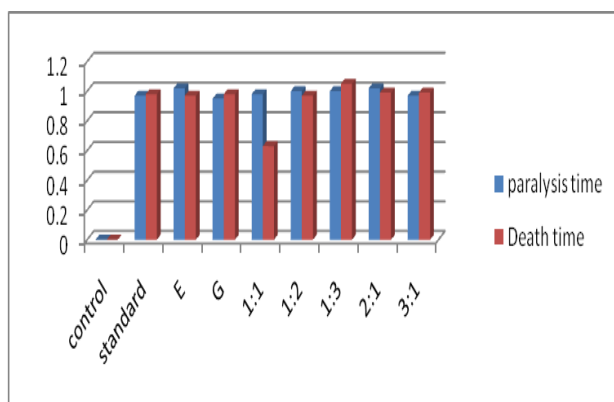


Fig: 1 Synergistic Anthelmintic activity of Eucalyptus and ginger oils

Table: 1 Synergistic Anthelmintic activity of Eucalyptus and ginger oils in *Pheretima posthuma*

Sn.	Group	Paralysis Time	Death Time
1.	Control	-	-
2.	Standard	0.97±0.0	0.98±1.5
3.	Eucalyptus	1.05±0.0****	0.97±2.0****
4.	Ginger	0.95±1.5****	0.98±2.0****
5.	1:1	0.98±1.0****	0.63±2.0****
6.	1:2	1.0±0.5****	0.97±2.5****
7.	1:3	1.0±0.5****	1.05±1.5****
8.	2:1	1.05±2.0****	0.99±2.5****
9.	3:1	0.97±2.5****	0.99±2.0****

Values are in Mean ± S.E.M (n=6) Data are expressed as Mean±S.E.M. Test employed ANOVA one way followed by Dunett's test. (n=6) animal in each group. ** (p<0.01), * (p<0.05), ns (non-significant) compared to control group.



STATISTICAL ANALYSIS

Analyses were carried by one way ANOVA followed by Dennett's multiple "t" tests. P values < 0.05 (95% confidence limit) was considered the statistically significant, using software Graph Pad Prism6.

RESULTS AND DISCUSSION

The results anthelmintic activity on *Pheretima posthuma* of selected eucalyptus and ginger oils are given in Table. The treatment with eucalyptus and ginger and combination of eucalyptus and ginger in 1:1, 1:2, 1:3, and 2:1, 3:1 ratio (Table:1) showed significant increase (Fig:2) and the mixture of oils are given with standard Albendazole. It may found that eucalyptus and ginger oil at different ratio (1:1, 1:2, 1:3, 2:1 and 3:1) exhibited maximum activity after 3hr and significantly increase paralysis even till 5hr after drug given as compared to control.

Synergistic anthelmintic activity in the present study showed that the eucalyptus and ginger oil at different ratio have enough ability to control which might be due to various chemical constituents present in eucalyptus and ginger oils. On comparison between different ratios, 1:2 and 1:3 ratios are most effective and suitable for further herbal formulation.

CONCLUSION

In Anthelmintic activity carried out at different composition of eucalyptus and ginger oil in the ratio of 1:2,1:3 exhibited more effective anthelmintic activity as compared to eucalyptus and ginger oil alone.

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