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

Sushil Pratap, Dilip Kumar Tiwari and Kishu Tripathi*
Pharmacy College, Itaura, Chandeshwar, Azamgarh, U.P., India.

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 ± SE. ANOVA followed by Dunnet’s multiple “t” tests. P values < 0.05 (95% confidence limit) was considered statistically significant, using software Graph Pad Prisma 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 elevenger’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. Helminthes were kept for 30 min. and after 1 hr. to 5 hr. of treatment the evaluation of activities were performed.

ANTHELMENTIC 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

<table>
<thead>
<tr>
<th>Sn.</th>
<th>Group</th>
<th>Paralysis Time</th>
<th>Death Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Control</td>
<td>0.97±0.0</td>
<td>0.98±1.5</td>
</tr>
<tr>
<td>2.</td>
<td>Standard</td>
<td>1.05±0.0****</td>
<td>0.97±2.0****</td>
</tr>
<tr>
<td>3.</td>
<td>Eucalyptus</td>
<td>1.05±0.0****</td>
<td>0.97±2.0****</td>
</tr>
<tr>
<td>4.</td>
<td>Ginger</td>
<td>0.95±1.5****</td>
<td>0.98±2.0****</td>
</tr>
<tr>
<td>5.</td>
<td>1:1</td>
<td>0.98±1.0****</td>
<td>0.63±2.0****</td>
</tr>
<tr>
<td>6.</td>
<td>1:2</td>
<td>1.0±0.5****</td>
<td>0.97±2.5****</td>
</tr>
<tr>
<td>7.</td>
<td>1:3</td>
<td>1.0±0.5****</td>
<td>1.05±1.5****</td>
</tr>
<tr>
<td>8.</td>
<td>2:1</td>
<td>1.05±2.0****</td>
<td>0.99±2.5****</td>
</tr>
<tr>
<td>9.</td>
<td>3:1</td>
<td>0.97±2.5****</td>
<td>0.99±2.0****</td>
</tr>
</tbody>
</table>

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

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.

ACKNOWLEDGEMENT

I would like to thank Prof Bajrang Tripathi, Chairman, Pharmacy College, Azamgarh and Prof. Dr. Kishu Tripathi, Director for providing constant encouragement, valuable guidance and facilities at all stages of this work.

REFERENCES