EFFECT OF CHANGERI (OXALIS CORNICULATA LINN) ON E. COLI

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ABSTRACT
Diseases like diarrhoea are still a routinely observed malady, which can become of grave nature due to dehydration, prostration etc. caused by it. E. coli infection is the frequent cause of this disease. Changeri (Oxalis corniculata Linn.) belonging to family Oxalidaceae is an easily available plant and has the property of destroying atisara-diarrhoea as classically stated. So it was thought to study the effect of this plant on E. coli. Changeri svarasa (juice of the whole plant) was used as for small herb it is ideal to use the whole plant.

KEYWORDS: Changeri svarasa, E.coli, Atisara- diarrhoea.

INTRODUCTION
Atisara–diarrhoea is a common yet grievous disease of the gastrointestinal tract. And one of the general causes of it is infection with the organism E. coli. Changeri (Oxalis corniculata Linn.) is a widely available plant in Gujarat and has been stated to have the property of destroying i.e. curing atisara along with other attributes like being dipan (promotes digestion), ruchikar (appetiser) and eradicates diseases like grahani(sprue), arsha(piles) and kustha (skin diseases).

So looking to the properties a study was carried out to observe the effect of changeri on E. coli. For small herb it has been advocated to use the whole plant hence it was decided to test Changeri svarasa prepared from the whole plant.

MATERIALS AND METHOD

a) The plant was collected from the campus garden of IIAPS, GAU, Jamnagar.
   It was washed well, drained and then made into paste by grinding. The paste was then squeezed through a cloth to obtain the svarasa.

b) The experimental organisms were E. coli, obtained from M. P. Shah medical college, Jamnagar. Antimicrobial assay was performed by inoculation of sub cultured pathogenic strains in nutrient broth.
Determination of Minimum Inhibitory Concentration (MIC)

MIC of Changeri svarasa against the above mentioned organism was determined by using broth dilution technique. Different sets containing a range of serial dilution of Changeri svarasa was prepared for the selected organism. 4 ml of nutrient broth was filled in each test tube and autoclaved. Test tubes were left to cool down at room temperature. In each set 450 µl of svarasa was serially diluted in 9 test tubes and 2 test tube was kept as positive(having organism) and negative( with changeri svarasa) blank. Test tubes were inoculated with a pathogenic strain except blank. The inoculated sets were kept for incubation at 37°C for 24 hours. Optical densities (O.D.) of each were measured at 600 nm.

Antimicrobial Assay

Antimicrobial assay was carried out by agar (well) diffusion method. Sterile nutrient agar plates (containing 20 ml N-agar) were prepared. 200 µl of the selected pathogenic strain was spread on N-agar plates with the help of L-shape spreader. 4 wells of 8 mm diameter were bore with the help of sterile borer. 100µl, 150 µl, 200 µl and 250 µl of Changeri svarasa were taken for the assay and they are loaded in the well. Plates were incubated at 37°C for 24 hours and observed for zone of inhibition on next day.

RESULTS

Minimum Inhibitory Concentration of *Changeri svarasa* on *E. coli*.

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Volume(µl)</th>
<th>O.D at 660 nm</th>
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<tr>
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<td>0.59</td>
</tr>
<tr>
<td>2</td>
<td>120</td>
<td>0.59</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
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<tr>
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<tr>
<td>5</td>
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<tr>
<td>6</td>
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<tr>
<td>7</td>
<td>250</td>
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</tr>
<tr>
<td>8</td>
<td>280</td>
<td>0.34</td>
</tr>
<tr>
<td>9</td>
<td>300</td>
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</table>
Agar ditch

<table>
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<tr>
<th>Sr. no</th>
<th>Volume (µl)</th>
<th>Zone of Inhibition (cm)</th>
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</thead>
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</tr>
<tr>
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<td>0.1 cm</td>
</tr>
<tr>
<td>3</td>
<td>200</td>
<td>0.2 cm</td>
</tr>
<tr>
<td>4</td>
<td>250</td>
<td>0.2 cm</td>
</tr>
</tbody>
</table>

Plate A: Changeri plant
Plate B: Changeri svarasa
Plate C: Antimicrobial effect of Changeri Swaras on E.coli

1. 100 µl Changeri svarasa
2. 150 µl Changeri svarasa
3. 200 µl Changeri svarasa
4. 250 µl Changeri svarasa
CONCLUSION

Changeri svarasa showed considerable antibacterial effect showing a 0.1 cm zone of inhibition at 150µl. Maximum zone of inhibition of 0.2 cm was observed at 200 µl against the pathogenic strain of *E. coli* organism.

As *E. coli* is a common causative organism for diarrhoea, changeri svarasa can be used for its treatment. However further studies are required for assessing the same.

REFERENCES


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