Research Article

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In vitro antibiotic activity of volatile oils of Carum carvi & Coriandrum sativum

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ABSTRACT

The antimicrobial activity of Volatile Oils isolated from Carum Carvi and Coriandrum Sativum were studied. The isolated Volatile Oils in varying concentrations were studied against Pseudomonas Aeruginosa and Proteus Vulgaris, by paper disc diffusion method, using Streptomycin as standard drug. The result indicated that both Carum Carvi and Coriandrum Sativum has antimicrobial potential and were active against Pseudomonous Aeruginosa selectively, while both oils were ineffective against Proteus Vulgaris.

Keywords: Carum Carvi, Coriandrum Sativum, Paper disc diffusion method, Streptomycin, Zone of Inhibition.

INTRODUCTION

Spices have been used in food preparations in tropical and sub tropical countries for a long time [1]. In Ayurveda & Greaco Arabic system of medicine, several spices are described as having Medicinal effects [2].

Carum Carvi(L) is reported to contain a-pinene (0.57%), B-pinene (4.68%), Myrcene (0.4%), p-cymene (7.99%), Limonene (1.48%), 3-Terpinene (17.86%) etc [3] and also is reported to have antimicrobial, antioxidant, anticarcinogenic, antispasmodic, and antihelminthic activity [4]. In the Present Study we have used the Volatile Oil isolated from the seeds of Carum Carvi. The seeds of Carum Carvi is extensively used Indian Sub continent as spices in regular preparations.

Coriandrum Sativum (L) was introduced to Chinese cooking and medicine around AD 600, and in Indian System of Medicine it has found its importance at the ages of Charaka. In Chinese Media, it is recommended for certain types of non pathogenic food poisoning caused by decaying matter. The parts used are leaves, seeds & oils. Volatile oil mainly acts on the digestive system, stimulating the appetite & relieving irritation. Leaves are widely used to flavour foods. Seeds are also ingredient of Curries and Pickling spices and bakery products [5].

In this study Antimicrobial activity of Volatile Oil of Caraway and Coriander were studied against Pseudomonous Aeruginosa and Proteus Vulgaris by Paper disc diffusion method.

MATERIALS AND METHOD: [6] [7] [8]

Caraway and Coriander were collected from the market. The taxonomic identification was done by Prof. D.N.Sharma of Abhilashi College of Pharmacy, Tanda. The seeds were crushed lightly to breakup into 2 halves. Then these were used for isolation of Volatile Oil using Clavengers Apparatus.

Pure culture Strains of Pseudomonous Aeruginosa and Proteus Vulgaris were collected from Dept. of Microbiology, Abhilashi Institute of Life Sciences and were incubated at 37±0.1°C for 24 hrs by inoculation into nutrient broth.

Nutrient Agar media (Qualigen) was prepared and Sterilized in a flask and cooled to 45-50°C and was distributed by pipette (25ml) in each pre sterilized petridishes, previously inoculated with 0.01ml of the nutrient broth cultures and swirled to distribute the medium homogeneously. Didks injected with various concentrations of Volatile Oil (10µl/ml, 10010µl/ml) were applied on the solid agar medium by pressing slightly. The treated petridishes were placed at 4°C for one hour and then incubated at 37±0.1°C for 24 hrs. Same was done for Standard drug Streptomycin and Control (DMSO).Lastly, the zone of Inhibitions formed on the media was measured with a transparent ruler in millimeters.

Table.1: Antibiotic activity of volatile oils of carum carvi & coriandrum sativum

<table>
<thead>
<tr>
<th>Oils and Standard</th>
<th>Zone of Inhibition (mm)</th>
<th>Zone of Inhibition (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pseudomonous Aeruginosa</td>
</tr>
<tr>
<td>Carum Carvi</td>
<td>10µl/ml</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>10010µl/ml</td>
<td>13</td>
</tr>
<tr>
<td>Coriandrum Sativum</td>
<td>10µl/ml</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>10010µl/ml</td>
<td>17</td>
</tr>
<tr>
<td>Streptomycin</td>
<td>10µg/ml</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>10010µg/ml</td>
<td>24</td>
</tr>
</tbody>
</table>

* Control Sample has not shown any activity.

RESULT AND DISCUSSION:

The In-Vitro antimicrobial activities of volatile Oil Isolated from Caraway and Coriander as well as that of Standard drug Streptomycin and Control (DMSO) are shown in the Table 1.

As seen from the table the Oils have shown activity against Pseudomonous Aeruginosa, while activity against Proteus Vulgaris was not observed. Oil of Carum Carvi in both the concentrations has shown approximately same activity, where as in case of Coriandrum Sativum the increase in
activity has shown increased activity in terms of zone of inhibition. According to the findings the Volatile Oil of Caraway and Coriander could be used as raw material for selective antimicrobial preparations due to their selective antimicrobial property.

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