Antimicrobial Activities of *Ocimum americanum* L. Essential Oil

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*Antimicrobial effects of essential oil of *Ocimum americanum* L. were studied by disk diffusion method. The essential oil was active against all tested microorganisms, that included, *Bacillus subtilis, B. megaterium, Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli, Aspergillus niger, Rhizopus stolonifer, R. oryzae, Candida albicans and Colletotrichum musae*. High toxicity against the mycelial growth of *C. musae* was found.*

*Ocimum americanum* (Hoary basil) is an ethnomedicinal plant used in folk medicine as a carminative, diaphoretic, stimulative, to cure respiratory and hepatic infections, for renal disorders and migraine. The seeds are used to treat influenza, chest and lung complaints. Leaves are used to treat parasitical skin diseases in hair care treatments, to arrest greying processes, for treating dysentery, to cure abdominal pains, to alleviate insect bites, as a diuretic, tonic and to treat cold and respiratory troubles. Leaves of the plant are also used against malarial fever along with black pepper. *O. americanum* is used in folk medicine for ailments of the eye, viz., night blindness, cataract, conjunctivitis, eye sores and for the improvement of eye sight. The essential oil of the plant forms a part of several drugs and pharmaceuticals. Several studies have reported the chemical composition of the essential oil of *O. americanum*. In the present investigation, antimicrobial activities of the essential oil of *O. americanum* were tested against ten economically important microorganisms.

Leaves and flowers of *O. americanum* used in this investigation were collected from Calcut University Campus. Voucher specimens (CU 52974) were herbarized at the Botany Department of Calcut University.

Mature leaves and inflorescences were collected, cleaned and shade dried at room temperature. Calcium carbonate crystals were added before distillation over the dried, flaked and powdered plant material to prevent isomerisation of unstable compounds. Hydrodistillation of the raw material was done on a Clevenger apparatus for 4 h.

*For correspondence*
TABLE 1 - ANTIBACTERIAL ACTIVITY OF OCIMUM AMERICANUM ESSENTIAL OIL

<table>
<thead>
<tr>
<th>Essential oil and standards</th>
<th>Bacillus subtilis (29)</th>
<th>Escherichia coli</th>
<th>Pseudomonas aeruginosa</th>
<th>Staphylococcus aureus</th>
<th>Aspergillus niger</th>
<th>C. albicans</th>
<th>R. oryzae</th>
<th>R. stolonifer</th>
<th>C. musae</th>
<th>C. rosea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure oil</td>
<td>20</td>
<td>22</td>
<td>18</td>
<td>18</td>
<td>29</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>1:1 Oil: acetone</td>
<td>30</td>
<td>35</td>
<td>16</td>
<td>16</td>
<td>33</td>
<td>30</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>1:2 Oil: acetone</td>
<td>18</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>18</td>
<td>18</td>
<td>18</td>
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</tbody>
</table>

*All values are mean of three determinations, Asterisk indicates that the diameter includes the filter paper disk diameter which is 16 mm.*

Contributed to the presence of camphor together with the minor components. The cytotoxicity of camphor present in the essential oil of several plants have been reported. Antimicrobial activity of the essential oil of *O. americanum* has been reported earlier on *Pythium debarianum* and *P. aphanidermatum*. The antimicrobial activity of *O. americanum* essential oil seem to be correlated with its cytotoxicity.

REFERENCES