

NOTE

Antifungal Studies of Volatile Constituents of *Boswellia serrata*

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The essential oil of *Boswellia serrata* was extracted by hydro-distillation with a yield of 0.6% and tested against several human pathogenic and plant pathogenic fungi.

Boswellia serrata^{1,2} (N.O. Burseraceae) is commonly known as 'Salai' in Hindi. It is used for curing rheumatism and nervous diseases. The plant is reported to provide a gum known as oleogum. In view of the following medicinal properties the above plant was selected for the present study.

For antifungal investigations cup method was employed as described by Vincent and Vincent³ and human and plant pathogens taken for the studies.

Various culture media used to observe antifungal activity against human and plant pathogens are recorded in Tables-1 and 2.

Different pathogens and human pathogens were sub-cultured on their respective agar media as shown in Table-1. For every observation inoculum was prepared by making a suspension of subcultured organism in 5 mL of broth and incubated for 48 h before adding to plates.

The plates were incubated for 70 h after application of the pure essential oils and standard antifungal agents at $27 \pm 2^\circ\text{C}$.

The zones of inhibition were measured and recorded in Tables-1 and 2.

The essential oil of *Boswellia serrata* has weak antifungal activity against human pathogens. It was highly effective against plant pathogens where it inhibited the growth of all tested micro-organisms. It showed antifungal activity against *Phytophthora garasitica* var. Piperina and Sagar pan isolate.

TABLE-I
ANTIFUNGAL ACTIVITY OF ESSENTIAL OIL OF *BOSWELLIA SERRATA*
AGAINST HUMAN PATHOGENS

| S.No. | Microorganism | Diameter of zone of inhibition including the diameter of well (6 mm) in mm | |
|-------|-----------------------------------|--|--------------------------|
| | | Essential Oil | Griseofulv in (1000 ppm) |
| 1. | <i>Malbranchea pulchella</i> | — | 8.0 |
| 2. | <i>Botryotrichum keratophilum</i> | 8.5 | 11.5 |
| 3. | <i>Microsporium gypsiium</i> | 8.0 | 14.0 |
| 4. | <i>Chrysosporium tropium</i> | 7.5 | 12.0 |
| 5. | <i>Aspergillus rizes</i> | — | 7.5 |

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TABLE-2
ANTIFUNGAL ACTIVITY OF ESSENTIAL OIL OF *BOSWELLIA SERRATA*
AGAINST PLANT PATHOGENS

| S.No. | Micro-organism | Diameter of zone of inhibition including the diameter of well (6 mm) in mm | |
|-------|--|--|--------------------------|
| | | Essential oil | Griseofulvin (1000 ppm). |
| 1. | <i>Botryodiplodia theopromae</i> varieties. | | |
| | (a) Mango isolate | 12 | 23 |
| | (b) Apple isolate | 7 | 21 |
| | (c) Citrus isolate | 9 | 26 |
| | (d) Musambi isolate | 12 | 20 |
| | (e) Guava isolate | 11 | 21 |
| | (f) Orange isolate | 8 | 19 |
| 2. | <i>Phytophthora parasitica</i> varieties, <i>piperina</i> sub-varieties | | |
| | (a) Sagar pan isolate | 21 | 38 |
| | (b) Jabalpur soil isolate | 17 | 32 |
| | (c) Madraasi pan isolate | 16 | 31 |
| 3. | <i>Rhizopus nodosus</i> 'NYM' <i>Brinjal</i> isolate | 7 | 20 |
| 4. | <i>Fusarium solani</i> varieties <i>Lichi</i> isolate | 14 | 24 |

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(Received: 10 November 1994; Accepted: 20 January 1995)

AJC-934