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*NOTE*

# Antimicrobial Activity of the Extract of *Sphaeranthus indicus*

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Alcoholic as well as aquous extracts of the plant *Sphaeranthus indicus* were taken in different dilutions to evaluate it's antimicrobial activity on different pathogens. Results revealed that crude extract of the plant is highly effective against *Alternaria solani, Fusarium oxysporum and Penicillium pinophilum* by preventing their growth to a greater extent.

*Sphaeranthus indicus* Linn (N.O. Compositae)[1] is a small herb with sessile leaves and rounded purple coloured flowers. It is distributed throughout India, Sri Lanka, China and Africa. The herb is bitter and sharp in taste. The plant is reported to have laxative, anthelmintic, diuretic, analgesic, antibiotic and antifungal activity. Decoction of the plant is also used against bronchitis, asthma, leucoderma, jaundice and scabies. Root and seeds are considered as anthelmintic. Juice of the fresh leaves is given against cough.

Because of its reputed therapeautic values the authors have tried to elaborate its antifungal activity on various pathogenic species.

Alcoholic and aquous extracts of the same plant in different proportions, *viz.*, 100%, 1 : 100 and 1 : 1000 were taken as test samples to see the inhibition effect on radial growth of *Alternaria solani, Fusarium oxysporum* and *Penicillium pinophilum* species. These extracts were mixed separately in the sterilized PDA medium in such a way as to get the final desired concentration. A disc, 6 mm in diameter obtained from the periphery of seven days old colony of the pathogens grown on PDA medium was placed in the centre of the petri-plate. After seven days incubation at 28 ± 1°C the radial growth of the pathogen was measured. PDA medium without having any extract alcoholic as well as aqueous served as control.[2, 3] All experiments were carried out in triplicate. Percentage inhibition was calculated as follows:

$$\% \text{ Inhibition} = \frac{\text{control} - \text{treated}}{\text{control}} \times 100$$

where control = without the test extract, treated = with the test extract.

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Observation Table-1 clearly reveals that alcoholic as well as aqueous extracts of the plant *Sphaeranthus indicus* have strong antipathogenic activity against the various pathogens taken not only in concentrate form but also even in thousand times dilution. It is important to note that these microbes are responsible for various plant diseases. Early blight of potato (Solanum tuberosum) and leaf spots of ber *(Zyziphus jujuba)* are caused by *A. Solani* and *F. oxysporum* respectively whereas *Penicillium pinophylum* species are soil fungus. Therefore it is advisable to carry on some more research on potential antimicrobial activity of the extract of the plant sphaeran-thus indicus which may serve as a valuable remedy for the above plant diseases along with soil fungus caused by *penicillium pinophilum.*

TABLE-1
EFFECT OF THE EXTRACTS ON RADIAL GROWTH OF *A. SOLANI, F. OXYSPORUM* AND *P. PINOPHILUM* IN VITRO

| S. No. | Solvent (Test sample) | Conc. | *A. solani* | | *F. oxysporum* | | *P. pinophilum* | |
|---|---|---|---|---|---|---|---|---|
| | | | Radial growth Diam. (cm.) | % Inhibition | Radial growth diam (cm.) | % Inhibition | Radial growth diam (cm.) | % Inhibition |
| 1. | Alcoholic | 1 : 1000 | 1.0 | 86.66 | 2.3 | 68.49 | 0.0 | 100 |
| | extract | 1 : 100 | 0.0 | 100 | 0.0 | 100 | 0.0 | 100 |
| | | 100 | 0.0 | 100 | 0.0 | 100 | 0.0 | 100 |
| 2. | Aqueous | 1 : 1000 | 0.0 | 100 | 0.0 | 100 | 1.0 | 87.17 |
| | extract | 1 : 100 | 0.0 | 100 | 0.0 | 100 | 0.0 | 100 |
| | | 100 | 0.0 | 100 | 0.0 | 100 | 0.0 | 100 |

Radial growth of diff. species is taken as an average of three replicates.

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