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ABSTRACT

Endophytic fungi colonize living plant tissues without producing any apparent disease symptoms or obvious negative effects infect they are responsible for producing many secondary metabolites. Schleicheria oleosa (Kusum) is well known tree of medicinal importance in India. All parts of Kusum are used in Indian Traditional Healing. Various part of kusum tree are either favorite pick of traditional vaids for indigenous therapies and medicine or timber, food, animal feed, and oil. In spite of these properties, kusum is not free from microbial diseases. Many fungal and bacterial pathogens were reported to infect it. In the present study, endophytic fungi isolated from the leaves of Schleicheria oleosa (Kusum). In all total eight fungi were isolated out of which antifungal activity of the organic solvent extracts(ethanol/ methanol) and hot water extract of Trachyspermum ammi at different concentrations i.e. 25%,50%,75%,100% was tested against; test fungi Fusarium sp.. The growth of the test fungi was inhibited by all the concentrations of extract prepared in hot water and methanol with maximum inhibition by 100% concentration, whereas higher concentrations of ethanol showed the inhibitory effect.

KEYWORDS: Entophytic fungi, Fusarium, Kusum and Inhibitory effect.

INTRODUCTION

The term endophyte include all organism that during a variable period of their life colonies the living internal tissues of their hosts. The word endophyte consist of two words, “endo” which means within and “phyte” which means plant. Endophytic fungi colonize living plant...
tissues without producing any apparent disease symptoms or obvious negative effects infect
they are responsible for producing many secondary metabolites. An Endophytic Fungi is an
endosymbiont, in general they do not have any pathogenic effects on its host plant. They
grow within their plant hosts without causing apparent disease symptoms (Petrini, O., 1991)
and growth in this habitat involves continual metabolic interaction between fungus and host. Schleichera oleosa (Kusum) is well known tree of medicinal importance in India. All parts of Kusum are used in Indian Traditional Healing (Palanuvej C, Vipunengeun N., 2008). Various part of kusum tree are either favorite pick of traditional vaids for indigenous therapies and medicine or timber, food, animal feed, and oil.

Ajwain has been commonly used in traditional medicine systems for a variety of medicinal
and pharmacological aspects (Lateef M, Iqbal Z, Akhtar MS, Jabbar A, Khan MN, Gilani
AH., 2006). In Traditional Persian Medicine (TPM), Ajwain was well known from thousands
of years. Persian practitioners usually used seeds of Ajwain as the most useful part of the

MATERIAL AND METHOD
EXTRACT PREPARATION: Take the seeds of Trachyspermum ammi and wash it with
distill water then dry it with Wattman filter paper and rest it for air dry then dry it at 40°C for
24hr. After drying crush it into powder form then filter and collect it into air tight bottle.

PREPARATION OF SOLUTION (ETHANOL/METHANOL/HOT WATER)
Aqueous extract
500gm seeds of Trachyspermum Ammi were kept for maceration with 1000 ml of distilled
water for 7 days. The extract was double filtered by using muslin cloth and Whatman no.1
filter paper and concentrated by evaporation on water bath. The extract was dried and used.

Alcoholic extract
500g of dried seeds of Trachyspermum Ammi was extracted exhaustively for 72hours in a
bottle with ethanol/methanol.

Endophytic Fungi Isolated from Schleichera oleosa (Kusum)
Fungal endophytes were isolated from the Schleichera oleosa (Kusum). The plants samples
were collected from the diverse region of Korba, Bilaspur, Katghora. The samples was
collected in sterile plastic bags, sealed and carefully brought to the laboratory. In the
laboratory, the leaves of *Schleicheria oleosa* (Kusum) surfaces were sterilized by soaking them in 1:5 dilutions of NaOCl (Sodium Hypochlorite solution) for 15 minutes. This will do to remove all microbial epiphytes. After that rinsed it in sterile distilled water and dipped in 70% ethanol for 10 minutes.

Then from the surface of sterilized leaves, segments are cut aseptically with sterile scalpel in a laminar-air-flow which is approximately 2mm X 2mm. The outer tissues of the sample were cut so as to expose the interior surface to PDA plates and incubated at 28°C for the appearance of the fungal growth. After 7 to 10 days of incubation, mycelial growth appeared on the plates. Then the fungal colonies were aseptically transferred onto new PDA plates for obtaining pure culture. The identification of fungi was done using the culture characteristics and microscopic characteristics of fungal culture such as shape, color, pattern and arrangement of the mycelium, conidial arrangement, types of spore etc (Chowdhary P.N., 2000).

**RESULTS AND DISCUSSION**

The growth of the test fungi i.e. *Fusarium sp.* was inhibited by all the concentrations of extract prepared in hot water and methanol with maximum inhibition by 100% concentration is 11 mm zone and 8 mm zone respectively whereas only higher concentrations (75%, 100%) of ethanol showed inhibitory effect. 100% concentration of ethanol extract showed a zone of 5mm while diameter. The result shows that Hot water extract of *Trachyspermum ammi* is giving better antifungal activity.

**Microscopic Examination**

![Fig. 1: Curvularia sp.](image1)  ![Fig. 2: Penicillium sp](image2)  ![Fig 3: Mucor sp.](image3)
Fig 4: *Botrytis Cenerea*  
Fig 5: *Fusarium*  
Fig 6: *Aspergillus Flavus*

Fig 7: *Mucor sp.*  
Fig 8: *Aspergillus niger*

**OBSERVATIONS**

Fig 9: Methanol 25%  
Fig 10: Methanol 50%  
Fig 11: Methanol 75%  
Fig 12: Methanol 100%

Fig 13: Ethanol 25%  
Fig 14: Ethanol 50%  
Fig 15: Ethanol 75%  
Fig 16: Ethanol 100%
Table 1: Anti fungal activity of Extract on *Fusarium sp.* at different concentration

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>DIFFERENT CONCENTRATION</th>
<th>METHANOL</th>
<th>ETHANOL</th>
<th>HOT WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>25%</td>
<td>3mm</td>
<td>Nil</td>
<td>3mm</td>
</tr>
<tr>
<td>2.</td>
<td>50%</td>
<td>4mm</td>
<td>Nil</td>
<td>6mm</td>
</tr>
<tr>
<td>3.</td>
<td>75%</td>
<td>6mm</td>
<td>3mm</td>
<td>7mm</td>
</tr>
<tr>
<td>4.</td>
<td>100%</td>
<td>8mm</td>
<td>5mm</td>
<td>11mm</td>
</tr>
</tbody>
</table>

CONCLUSION

On our study shows that *Schleichera oleosa* have good source of different kind of endophytic fungi. Our study indicates that seeds of *Trachyspermum ammi* can be used for meditational applications. Hot water, Ethanol and Methanol Extract of *Trachyspermum ammi* can be used to control the diseases in *Schleichera oleosa* which will be cost effective and eco-friendly.

REFERENCES


