

Study of Phylloplane and Rhizoplane Mycoflora of Some Ornamental plants in Amravati Region

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Abstract: *Phylloplane mycoflora of Hibiscus rosasinensis, Catharanthus roseus, Bougainvillia spectabilis and Nerium indicum was investigated during January 2016 to February 2017 and Aspergillus niger, Alternaria alternata, Colletotrichum capsici and Aspergillus flavus respectively were isolated during this investigation. Rhizoplane mycoflora of following investigated plants was studied and following isolates were investigated, Catharanthus roseus- Colletotrichum capsici and Fusarium oxysporum, Rosa sinensis-Cladosporium sp and Phoma exiqa, Jasminum sambac -Alternaria alternata. All above isolates are reported for the first time from this region.*

Keywords- *Phylloplane, Rhizoplane, Hibiscus, Aspergillus, Catharanthus, Alternaria, Colletotrichum, Fusarium.*

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I. Introduction-

The rhizoplane is the root surface of growing plants in soil which provide unique habit. The rhizosphere which is favorable for the development of microorganisms in soil stimulates the development of rhizoplane mycoflora. The fungal flora which is associated near the root controls the rhizoplane mycoflora. Bowel and Odors (1973) explain that three week old plants contains 10% micro organisms and growth of the plants increases the rhizoplane mycoflora. Rhizoplane mycoflora and Phylloplane mycoflora play an important role in development of plants.

The leaf surface is most important substrate for growth of microorganisms, as it provides essential nutrients required for the growth. Phylloplane and endophytes are the resident on healthy leaves and causes diseases to the plants. Endophytes are present in living tissues of plants.

In present investigation study of Rhizoplane and Phylloplane mycoflora of some ornamental plants of Amravati region were carried out from January 2016 – February 2017. *Hibiscus rosa sinensis, Catharanthus roseus, Bougainvillia spectabilis* and *Nerium indicum* were selected for this investigation.

II. Materials and Methods

Regular survey of rhizoplane and phylloplane mycoflora of some ornamental plants was carried from January 2016 – February-2017.

To know the effect of environmental conditions in diseases development, collection of the disease plant parts were made from different habitats from the Amravati region where the four places for sample study. The collections were made from the field as well as in city and comparative incident of diseases development were reported. Samples were collected at the interval of fifteen days.

The diseased leaves and roots parts were collected separately in polythene bag. Their symptoms were carefully noted. Phylloplane and Rhizoplane mycoflora was investigated by washing method. Healthy plant parts were also considered for this purpose. Washes were made by distilled water and were allow to grow on the medium. Infected leaf and roots were artificially inoculated on culture medium PDA and Asthana and Howkers medium A was used for this purpose. The diseased tissue were surface sterilized with 90% alcohol before inoculation and comparative account of saprophytic and parasitic flora was recorded. Slides were prepared by scrapping infected tissues of leaves and roots.

Phylloplane and rhizoplane mycoflora was carried out in petriplate and surface mycoflora was investigated. Pathogenesis were also carried out for parasitic forms by Kochs postulate method, Scarpel injury method and spore suspension method were used for this purpose. Phylloplane and rhizoplane mycoflora on selected ornamental plants were recorded.

III. Results and Discussion

Present investigation reveals that ornamental plants suffer heavy losses due to fungal infection both in phylloplane and rhizoplane region.

Table 1- Phylloplane mycoflora of different ornamental plants

S.No	Name of plants	Name of fungal species
1	<i>Hibiscus rosasinensis</i>	<i>Mucor sp,Aspergillus niger,Rhizopus stolonifer.</i>
2	<i>Catharanthus roseus</i>	<i>Alternaria alternata, Mucor sp.</i>
3	<i>Bogainvella spectabilis</i>	<i>Rhizopus stolonifer,Steril mycelia,Colletotrichum capsici.</i>
4	<i>Nerium indicum</i>	<i>Aspergillus flavus,Mucor sp.</i>

During phylloplane mycoflora (Table-1) *Mucor sp,Aspergillus niger, Alternaria alternata,Colletotrichum capsici,Rhizopus stolonifer,Aspergillus flavus* causes diseases to the plants while in rhizoplane mycoflora(Table-2) *Cladosporium sp* and *Colletotrichum sp, Fusarium sp, Phoma exiqua* and *Alternaria alternata* were the prominent members infecting plants.

Table-2.Rhizoplane Mycoflora of different ornamental plants

S.No.	Name of plants	Name of Fungal Species
1	<i>Crysanthemum indicum</i>	<i>Colletotrichum capsici, Fusarium oxysporum,Penicillium sp.</i>
2	<i>Rosa sinensis</i>	<i>Cladosporium cladosporoid,Phoma exiqua,Mucor sp.</i>
3	<i>Nerium indicum</i>	<i>Aspergillus flavus.</i>
4	<i>Hibiscus rosasinensis</i>	<i>Aspergillus niger,Rhizopus stolonifer.</i>

Maximum frequency of *Rhizopus stolonifer* was reported followed by *Aspergillus niger, Mucor Sp,Penicillium Sp, Alternaria alternata* and *Fusarium oxysporum .Fusarium oxysporum, Penicillium Sp, Colletotrichum capsici* were causing diseases to *Crysanthemum indicum* in rhizoplane conditions.

Phylloplane mycoflora of *Catharanthus roseus* was investigated by Shamim shamsi and Razia sultana (2014) and they have also observed *Alternaria alternata* on this plant where as Mycoflora of *Hibiscus rosa sinensis* was investigated by R.R.Mishra and V.B.Srivastava(1970) and they have also observed *Rhizopus stolonifer* and *Aspergillus niger* associated with phylloplane mycoflora of this plant .In our investigation same type of results are reported in Amravati region.

It is observed that these fungi are pathogenic and affects to the ornamental plants in reducing size of leaf and flower.

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