

# Incidence of Fungi Associated with Naturally Decomposed Flowers

Siddharth K. murumkar

Department of Botany, C.B.Khedgi's Basveshwar science, Raja Vijaysinh Commerce and Raja Jaisinh Arts College, Akkalkot, Maharashtra, India

## ABSTRACT

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Everyday enormous amount of flowers and their parts are offered in temples in our country creating a large amount of flower wastes. Fungi are performing unique role in degradation of floral wastes. Decomposition is an important functional process of ecosystem governing the cycling of nutrients. The flowers and their parts exposed to atmosphere in the field were found to infested by variety of moulds. A survey undertaken showed incidence of fungi associated with naturally decomposed flowers. Several fungi viz. *Aspergillus* spp., *Fusarium* spp., *Mucor* spp., *Rhizopus* spp., *Phytophthora* spp., *Penicillium* spp., and *Piptocephalus* were recorded with high frequency on the surface of naturally decomposed flowers and their floral parts.

**Keywords :** Decomposition, Flowers, Fungi, Wastes, Survey

## I. INTRODUCTION

Floral wastes occupy largely during functions, worships, ceremonies, festivals and big holy places this creates heaps of wastes which are carelessly thrown on everywhere. Flowers come as waste from various sources like hotels, marriages, gardens, temples, churches, dargah, and various other cultural and religious ceremonies. Vankar et.al. (2009) had reported that enormous amount of flower waste is produced in temples of India. Ravishankar et.al. (2014) have reported that almost 1450 tonnes of flowers are being offered to the deities in various temples all over the country. Tiwari (2014) carried out a research with the aim to utilize & manage floral waste obtained from temple wastes. It was proved from the

study that flowers can be very well used for composting. Jadhav et.al. (2013) Degradation of floral wastes is a very slow process as compared to other wastes degradation. Vermicomposting of temple wastes (Nirmalya) obtained from Ganesh temple, Sangli Maharashtra was done by Gaurav. & Pathade (2011) Hence he stated vermicomposting of flower waste is an excellent and ecofriendly method of flower waste management. Shouchee et.al. (2011) used various processes like composting to manage floral waste. They used floral waste and different proportion of cattle dung mixtures. It was observed the degradation process of flower wastes. Fungi are eukaryotic microorganisms and they are major component of soil mycoflora. Fungi produces extracellular enzymes like cellulase, pectinase, lignase

etc. to utilize the organic substrates present in the floral parts as energy and nutritional sources.

R.R.Mishra&V.V.Srivastva( 1970) seventeen species were isolate from floral parts of Hibiscus rosaSinensis . comparatively higher number of species from the different parts was obtained in Augst. Only Rhizopus was common dominant and appeared almost throughout the course of investigation. *Aspergillus niger*&*Aspergillus falvus* were also of wide occurrence with considerable higher percentage. Shobha shouche et. al. (2014) They studied mycobiota of decomposing floral wastes material . The present study was has concerned about the isolation and identification of fungi related to floral wastes. They stated in rainy season average factor was 1.065 where as in winter and summer season average factor was 0.958 respectively. Among all the 12 strains obtained more abundtly in all the season. *Aspergillus*specis were obtained as the most dominant genus among fungal community. Results were shown to presence of diverse genera of fungi included *Mucor*,*Cladosporium*, *Alternaria*, *Aspergillus* and *penicillium* were dominant genera. *Aspergillus* and *alternaria* were found to be most frequent isolated genera.

## II. MATERIAL AND METHOD

In the present study attempt have been made on naturally decomposed flowers and their parts were collected in plastic bags. They were brought to the laboratory for observation and identification of fungi flowers were collected during the month of June to march. The decomposed flowers cut in to pieces and pieces were transferred into agar medium for isolation of fungi.**Isolation of fungi from decomposed flowers**

For the isolation of fungi, humid chamber method and dilution plate method (Waksman, 1922) were followed. The dilution plate method consists of shaking of decomposed flower parts in sterile distilled water, then series of dilutions were made, from the dilution flask one ml sample was placed in petridishes and dispersed on semisolid but cooled potato dextrose agar and Martins rose Bengal agar medium by shaking and rotating the plate before agar solidifies. To reduce growth of bacteria and actinomycetes the medium was adjusted to pH 4.0–4.5. Then the plates were incubated at room temperature for six days, slide were prepared from the fungal growth appeared and the fungi were identified by referring standard literature.

Similarly, isolation of fungi was done by humid chamber method and use of moist blotters, plant parts were kept in the humid chambers in which humidity was maintained by use of moist blotters and incubated at room temperature for six days and identification of fungi was made by preparing micro slides and observing under microscopes. Small portion of decomposed plant parts were also plated by using moist blotters and identification was done by preparing slides and observing under microscope.

### Identification of fungi associated with naturally decomposed flowers and their parts.

The isolated fungi was maintained on slants and sub culturing0.0. was done at regular intervals for the further studies. The isolated fungi were identified and confirmed with the help of A manual of soil fungi{ Gilman-1945) and The illustrated kingdom of fungi{ D.S. Mukadam}.

### Identification of fungi associated with decomposed flowers

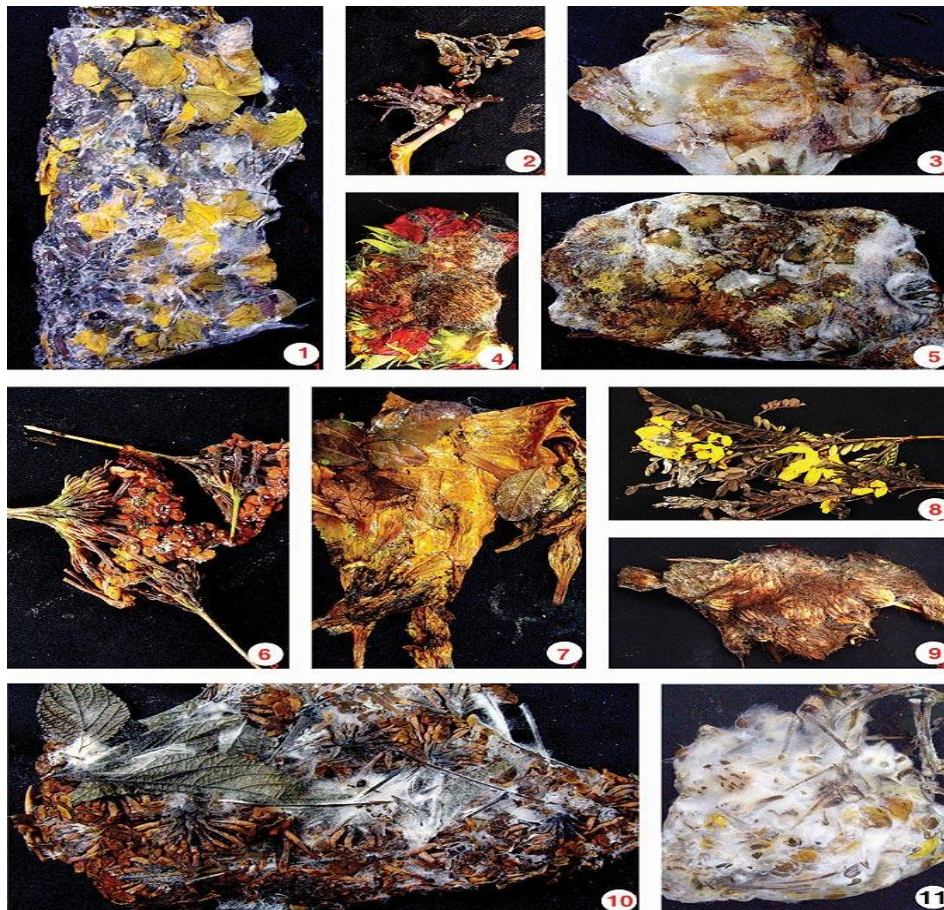
Fungi associated	Colour	Nature of growth
<i>Aspergillus flavus</i>	<i>Tagetuserecta</i> L. Yellowish	Partial

<i>Rhizoctonia</i> sp.	Black	Partial
<i>Aspergillus niger</i> <i>Aspergillus flavus</i> <i>Penicillium</i> sp.	<b><i>Rosa indica</i>L.</b> Black Yellow Faint blue	Moderate Bumper Partial
<i>Aspergillus niger</i> <i>Penicillium</i> sp. <i>Rhizoctonia</i> sp.	<b><i>Catharanthus roseus</i> (L.) G. Don.</b> Black Greenish Black	Moderate Partial Partial
<i>Fusarium oxysporum</i> <i>Rhizoctonia</i> sp. <i>Aspergillus flavus</i>	<b><i>Spathodeacampanulata</i>P.Beauv.</b> Whitish Blackish Yellow	Moderate Partial Partial
<i>Piptocephalus</i> <i>Aspergillus flavus</i>	<b><i>Delonix regia</i> (Boj.ex Hook)</b> White Yellowish	Bumper Partial
<i>Fusarium roseum</i> <i>Chaetomium</i> sp.	<b><i>Cana indica</i>L.</b> White Black	Moderate Partial
<i>Penicillium</i> sp. <i>Fusarium</i> sp. <i>Verticillium</i> sp. <i>Phytophthora</i> sp.	<b><i>Peltophorumpterocarpum</i></b> Blue White Green White	Moderate Moderate Partial Partial
<i>Mucor</i> sp., <i>Rhizopus</i> sp. <i>Fusarium</i> sp. <i>zoctonia</i> sp.	<b><i>Plumria alba</i> L.</b> Whitish Whitish Blackish	Partial Partial Moderate
<i>Fusarium</i> sp., <i>Mucor</i> sp. <i>Rhizopus</i> sp.	<b><i>Dathura metal</i>L.</b> Whitish Whitish Black	Moderate Moderate Moderate
<i>Fusarium roseum</i> <i>Aspergillus terreus</i> <i>Aspergillus flavus</i> <i>Penicillium</i> sp.	<b><i>Pyrostegiavenusta</i>(Ker. Gaw) Hiers.</b> White Yellow Yellow Blue	Moderate Partial Moderate Moderate

Aspergillus niger Fusarium oxysporum Rhizopus sp. Trichoderma sp.	<b>Lantana camara L.</b> Black White White Green	Moderate Partial Partial Partial
Phytophthora sp. Fusarium sp. Aspergillus niger	<b>Jasminum calophyllum Wall ex. Clarke</b> White White Black	Moderate Partial Moderate
Aspergillus niger Penicillium sp. Aspergillus terreus	<b>Plumbago zeylanica L.</b> Black Blue Yellow	Bumper Bumper Partial
Aspergillus niger Fusarium sp., Mucor	<b>Nerium indicum Mill</b> Black White White	Bumper Partial Partial
Aspergillus niger Phytophthora	<b>BogainvilleaspectabilisWill d.</b> Black White	Moderate Moderate
Penicillium sp. Nigrospora sp. Aspergillusniger Fusarium sp.	<b>Mirabilis jalapa L.</b> Faint blue Pinkish Black White	Partial Partial Moderate Partial
Aspergillus flavus Rhizoctonia sp. Mucor,	<b>Gliricidia maculate H.B. &amp; K.</b> Yellowish Blackish White	Partial Moderate Partial
Fusarium oxysporum Aspergillus flavus	<b>Caesapinapulcherima</b> White Yellowish	Moderate Moderate
Fusarium oxysporum Aspergillus niger	<b>Plumaria alba</b> White Black	Rich Moderate
Penicillium sp. Trichoderma sp.	<b>Jatropha curcus</b> Blue Green	Partial Partial

Fusarium sp.	White	Partial
Mucor sp. Rhizopus sp.	<b>Zeniaperigyna</b> White White	Moderate Moderate
Fusarium oxysporum Mucor sp.	<b>Cassia simea</b> White White	Moderate Partial
Mucor sp. Rhizopus sp.	<b>Calliandra sp.</b> White White	Moderate Moderate





### III. Result and Discussion

The results summarized in the table clearly indicate that the flowers and floral parts decaying in the nature may successfully take place due to associations of fungi. It can be concluded from the results regarding the degradation of floral parts with the help of fungi that number of fungi as compared with leaves and fruits are very few. This may be because of the antifungal phenolic compounds present in the floral parts. However, the fungi which appeared on floral parts may be few in numbers but they are found to grow fast and degrade floral parts successfully. Clearly show in the table during the process of degradation of plant flowers large number of fungi were isolated and identified of these *Aspergillus niger*, *aspergillus flavus*, *fusarium sps.* *Penicilium* *sps.* *Mucor sps.* *Rizopus* *sps.*, *Phytophthora* *sps.*, *Rhizoctonia sps.* *Trichoderma sps.* *Piptocephaloussps.* Etc. Among the isolated fungi

*Penicilium* *sps.*, *Fusarium sps.*, *Aspergillus sps.* *Trichoderma sps.*, fungi were present in high degree on the surface of majority decomposed flower residues. This clearly indicates that these fungi might be developing ability to degrade and utilized the phenolic compounds. It is clear from the results concluded that Deuteromycetes fungi are superior for degradation and utilization of flower wastes and more promising in Bio- composting.

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