SCREENING OF SEED BORN MYCOFLORA ASSOCIATED WITH THE SELECTED SIX FOREST TREE SEED SAMPLES IN MUDIGERE.

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Abstract: The present study were carried out on seed borne mycoflora of six tree species viz. *Pterocarpus marsupium* , Leucaena leucocephala , *Gmelina arborea, Terminalia bellerica Neolamarckia cadamba,and Caryota urens* collected from different places in deciduous and semi evergreen forest of Mudigere during October to December 2012. Seeds were screened for seed borne fungi by blotter technique and agar plate method. All six samples showed variation in fungal diversity with five common and twenty five different species. Among thirty species twenty five species belongs to Deuteromycetes (83.3%), three species of Ascomycetes (10%) and only two species of Zygomycetes (6.6%).The present study results revealed a high incidence of *Aspergillus*, *Penicillium* Trichoderma , *Alternaria* species may be due to optimum temperature and relative humidity. Presence of these seed born fungi on or inside the seeds reduces the quality and also percent survival in the forest.

Key words*:* Seed borne. Mycoflora, Forest

I.INTRODUCTION

Forest is a large area dominated by trees and for its regeneration proper germination of seeds subsequent development is essential. Like others seeds forest trees also carry numerous fungi which are known to cause considerable damage to seeds and seedlings (Grawatt 1931, Gibsson 1957). Fungi exist in seeds as spores and hyphae, Fungi can survive for long time on the seed coat and in the internal diseased seed tissue. So seed quality of any forest tree species are affected by seed borne fungi. Some seed borne fungi are saprophytes and do not affect the seed quality, but some are pathogenic cause disease in seeds or germination failure. The physiological condition in the form nutrient imbalance has also been reported as an important factor for low germinability (Gupta and Pattanath.1975) A number of ecological groups of fungi can be found associated with seeds and is an excellent means of transmission of plant pathogen. This is useful to know how the pathogen gets associated with seeds. So the present study was aimed to screen the different types of seed borne mycoflora present in the selected forest tree seeds which will be useful in increasing productivity and also inducing early emergence of seedlings.

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II. MATERIALS AND METHOD

2.1. Study area

Mudigere is a town panchayath and Taluk in Chikkamagaluru district in Karnataka of India. It is 35 km away from the district headquarters. Mudigere is located at 13.1378°N , 75.6060°E. It has an average elevation of 970 m (3,180 ft) . The annual rainfall is typically very high ranging from 3000 mm to 3500 mm per year. In Mudigere the annual temperature is 18 to 24^0C and a maximum of 32^0 with moist deciduous forest and semi evergreen forest

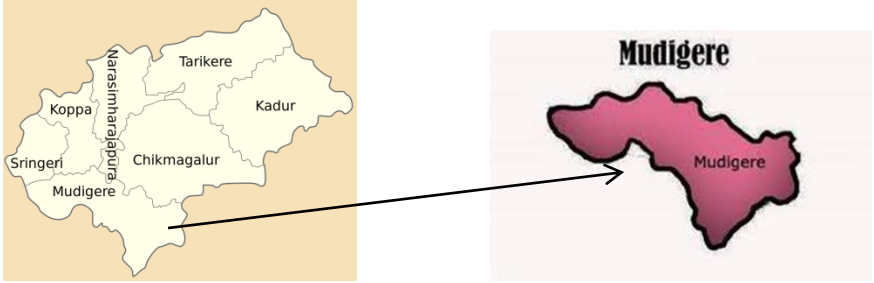


Fig:-1. MUDIGERE Taluk Map.

2.2. Collection of samples

The seed samples of Six different forest trees were collected from different places in deciduous and semi evergreen forest of Mudigere during October to December 2012 and stored in polythene bags at room temperature for the isolation of seed mycoflora. Fungi associated with the seeds were isolated by blotter technique and agar plate method (Khairnar.2011). Twenty seeds of each plant species were tested.

2.3. Isolation of seed borne fungi.

For the isolation of seed borne fungi Potato dextrose agar media supplemented with tetracycline or streptomycin to avoid the bacterial contamination was used and samples were inoculated into the petri plates containing medium and sterilized moist blotter paper. Five seeds were plated in each Petri dish containing agar medium and sterilized moist blotter paper. Plates were incubated at room temperature (30 ± 2°C) and observations were recorded from three to seven days. To each Petri plates about five seeds were placed while one at the centre and four are arranged at the periphery of the plate in sterilized condition. Then petriplates were sealed and incubated for 3 -7 days at room temperature (25 ± 2^0). Obtained fungi were identified on the basis of colony characteristics and microscopic examinations by using relevant literature (Watanabe. 2010. Nagamani. *et.al*, 2005, Barnet .1972)

III. RESULTS AND DISCUSSION

We could able to isolate 30 species of fungi from six selected tree species from Mudigere forest region by blotter method and PDA media method (Table.1, Fig. 2). The highest fungal growth was identified on PDA method compared to blotter method. Fungal incidence was more on PDA than on CZA and RBA (Bhattacharyya and Jha, 2011). PDA is the most favored medium for the isolation and characterization of fungal species from plant tissues and soil system showed excellent fungal growth and development due to the availability of required carbon source and other biochemicals (Shivanna *et al*., 2011). All six samples showed variation in fungal diversity with five common and twenty five different species. We also observed less incidence of seed mycofolra on all selected forest seeds. Among thirty species the incidence of saprophytic fungi is more than pathogenic fungal species. More number of fungi was observed on the seeds of *Pterocarpus marsupium and similar number of fungal species recorded from* Leucaena leucocephala (Fabaceae) ,*Gmelina arborea* (Lamiaceae), *Terminalia bellerica* (Combretaceae), *Neolamarckia cadamba* (Rubiaceae) and *Caryota urens* (Arecaceae). Less number of fungal species may be due to hard seed coat in all selected seeds. Twenty five species belongs to Deuteromycetes (83.3%), three species belongs to Ascomycetes (10%) and only two species to belongs Zygomycetes (6.6%).The present study results revealed a high incidence of *Aspergillus*, *Penicillium* Trichoderma , *Alternaria* species may be due to optimum temperature and relative humidity.

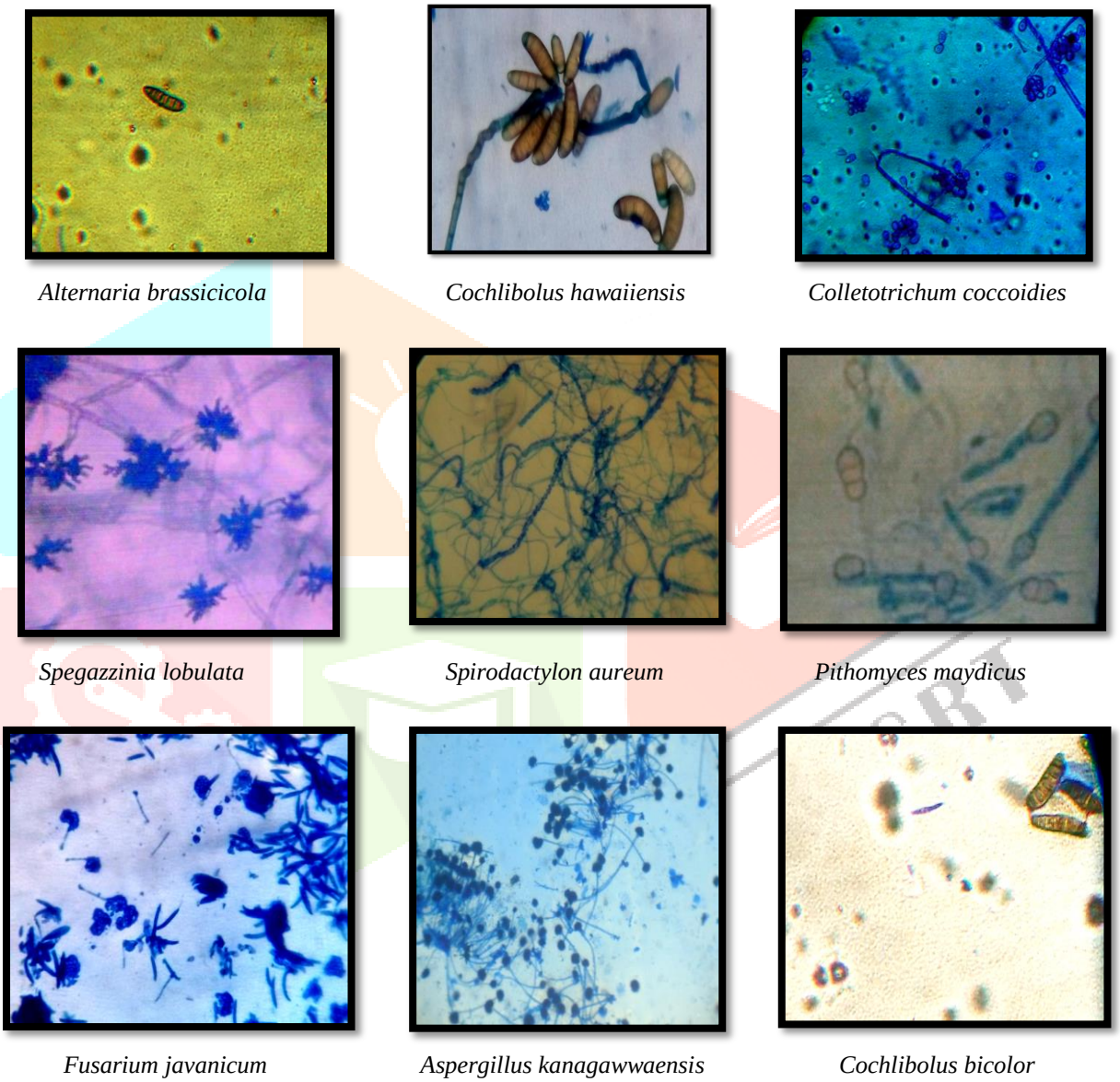
Table. 1,List of seed borne fungi isolated from selected tree species from Mudigere forest region.

Name of the fungus	Selected tree species					
	Pterocarpus marsupium	Leucaena leucocephala	*Gmelina arborea*	*Terminalia bellerica*	*Neolamarckia cadamba*	*Caryota urens*
Alternaria alternate			+			
Alternaria brassicicola		+				
Aspergillus kanagawaensis		+				
Aspergillus niger	+				+	
Aspergillus niger spores						
Aspergillus ochraceus				+		
Aspergillus sydowii			+			
Circinella species					+	
Cladosporium cladosporioides						+
Cladosporium sphaerospermum		+				
Cochlibolus bicolor	+					
Cochliobolus hawaiiensis		+				
Emericella nidulans	+					
Fusarium javanicum						+
Mucor varians	+					
Myrothecium cinctum					+	
Penicillium crysogenum					+	
Penicillium decumbens	+					
Penicillium species				+		
Penicillium species					+	
Penicillium spore						+
Periconia species		+				
Periconia species				+		
Pithomyces maydicus					+	
Spegazzinia labulata				+		
Spirodactylon aureum						+
Torula caligans			+			
Trichoderma atroviride		+				
Trichoderma citrinoviride			+	+		
Trichothecium roseum			+			

IV. CONCLUSION

The seed borne mycoflora affect the seed germination and young seedlings. In order to avoid abundant seed contamination reported in the present study proper management is required. It is recommended that to collect the seeds periodically and dressing with fungicides to prevent the transmission of fungi for the proper regeneration of forest. So that we can improve the quality of forest tree seeds and planting stock

Fig.2. Sseed borne fungi isolated from seeds of six selected tree species in the study area.



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