



Seed born mycoflora of cultivated hybrid soyabean and groundnut varieties in Latur district Maharashtra

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Abstract

In present investigation seeds of Soyabean and Groundnut were acquired from the oil seed research centre in Latur and examined for seed born mycoflora at Swami Ramanand Teerth Marthwada University Nanded's department of Botany. Using the traditional blotter and agar plate technique. When *Aspergillus* and *Rhizopus* are discovered in all kinds of seed. from Soyabean samples, fungal species were identified: *Aspergillus*, *Rhizopus*, *Curvularia*, *Penicillium*, *Mucor*, and *Fusarium spp.* fungus species were detected from *Arachis hypogea* samples: *Aspergillus*, *Rhizopus*, *Penicillium*, *Curvularia*, and *Fusarium spp.* Present study concluded that high moisture seeds of both Soyabean and Groundnut more susceptible to fungal contamination.

Keywords: *Glycine max*, *Arachis hypogea*, seed born mycoflora, blotter method, agar method

Introduction

India is large producer of oil seeds. Due to the many agronomic zones in India, a broad range of oil seed crops are cultivated, with soyabean and groundnut being major oil seeds. The commercial crops of soyabean [*Glycine max. (L)Merrill*] and groundnut are planted in India during the Kharip and Rabbi seasons. The popularity of the soyabean crop originates from its high content of high-quality protein (43%) and a cholesterol-free, oil-rich source (20%), as well as a substantial amount of unsaturated fatty acids. (Golbilz, 2003) [4]. Fungi are the most common cause of grain and seed deterioration. Several organisms, including bacteria, nematodes, and fungus, contaminated seed during storage, according to the literature, and had a negative impact on seed quality. *Aspergillus*, *Penicillium*, *Fusarium*, *Rhizopus*, and *Alternaria* species. Have been discovered in abundance as post-harvest mould in storage. (Malhotra *et al.* 2003) [7]. Damage due to the oilseed has been reported to be caused by the fungi associated with them Fungi like *Aspergillus*, *Alternaria*, *Fusarium*, *Rhizopus*, *Penicillium* causes discoloration, rotting, shrinkage, and seed necrosis, loss in the germination capacity and toxification to oilseed (Kakade *et al.*, 2011) [6]. *Aspergillus* and *Rhizopus* are the most common and play an important role in seed biodeterioration (Chavan, 2011) [3].

Material and Method

The experiment was conducted at Swami Ramanand Teerth Marthwada University Nanded's Department of Botany, School of Life Sciences. Seeds of *Glycine max* and *Arachis hypogea* were obtained from the oil seed research facility in Latur (Maharashtra, India). The seed was stored in a sterile polythene bag at the Botany Department's laboratory for future research and analysis.

Table 1

Varieties of soybean (<i>Glycine max L.</i>)	Varieties of Groundnut (<i>Arachis hypogea L.</i>)
Code 02	1. ICGN-00203
Code 03	2. LGN-162
Code 06	
Code 08	
Code 22	

Fungal pathogen by blotter method and Agar plate method according to ISTA (1996). After incubation seed borne mycoflora was analyzed with the help of compound microscope. Identification of seed borne pathogen is done with preparation of permanents slide. (Barnet *et al.* 1972, Mishra *et al.* 1969, Ellis, 1971, Kenneth *et al.* 1965 and Sutton, 1980) The moisture content (%) of the sample was determined by the method of Aliyu *et al.* 2007.

Table 2: Isolated fungus and the quantity of colonies from Soybean.

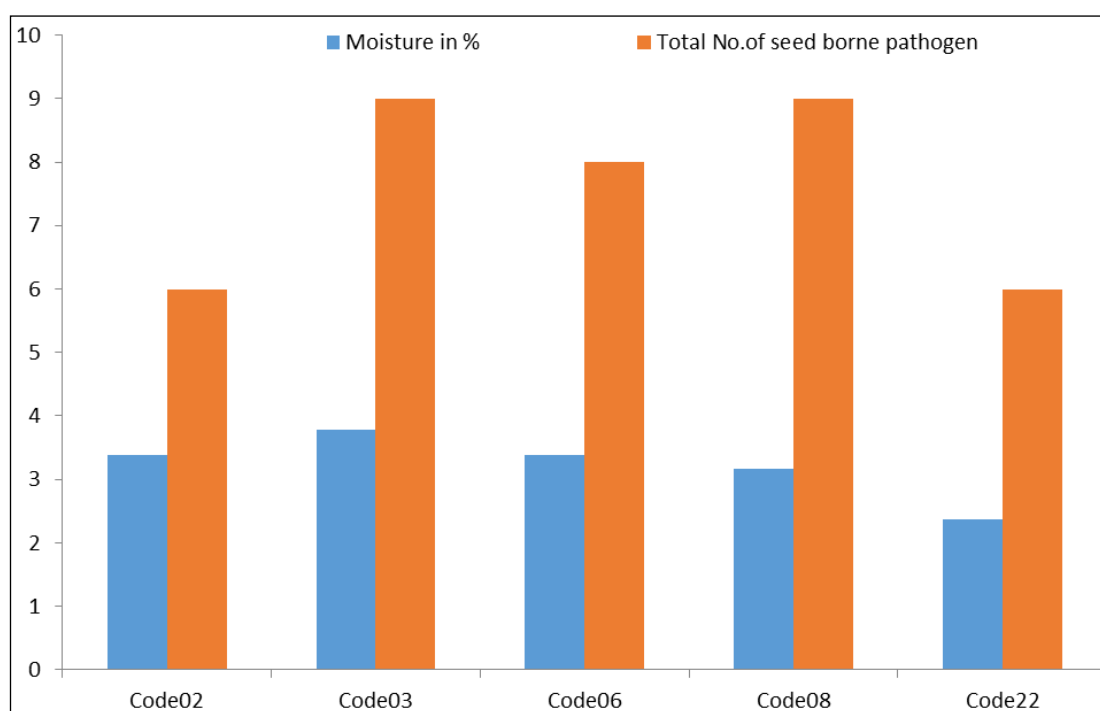
Name of the sample (varieties)	Moisture %	<i>Aspergillus</i>	<i>Rhizophus</i>	<i>Penicillium</i>	<i>Curvularia</i>	<i>Fusarium</i>	<i>Mucor</i>	Total
Code02	3.38	3	2	1	-	-	1	6
Code03	3.78	4	1	-	1	1	2	9
Code06	3.38	4	3	-	-	-	1	8
Code08	3.17	3	3	2	-	1	-	9
Code22	2.37	2	1	1	1	-	1	6

Table 3: Isolated fungus and the quantity of colonies from groundnut.

Name of the sample (varieties)	Moisture %	<i>Aspergillus</i>	<i>Rhizophus</i>	<i>Penicillium</i>	<i>Curvularia</i>	<i>Fusarium</i>	Total
ICGN-00203	4.1	4	3	1	-	1	9
LGN-162	2.90	2	1	-	1	1	5

Result and Discussion

Figure 1 illustrates the percent moisture content of samples collected from several types. The maximum moisture level (3.56 percent) was found in sample code 03, while the lowest moisture content was found in sample code 22. (2.48 percent). In addition, six fungal taxa were detected, including *Aspergillus*, *Rhizopus*, *Penicillium*, *Fusarium*, and *Mucor*. The distribution of these isolates was not equal among the different soybean varieties. *Aspergillus*, *Rhizopus* were the most frequently occurring taxa found in all the soybean varieties are studied. *Fusarium* was found only in code 03 and code08 while *Penicillium* are obtained in code 08 and code 22 and *curvularia* were obtain in code 03 and code 22. The total number of colonies isolated throughout the study was highest in sample from code 03 and code 08.

**Fig 1**

In *Arachis hypogea* result also showed that 5 fungal taxa were identified namely *Aspergillus*, *Rhizopus*, *Penicillium*, *Curvularia*, *Fusarium*. The distribution is not equal among the different varieties of groundnut. *Fusarium* was only found in ICGV00203. *Penicillium* is found in both of the varieties of groundnut but ICGV00203 also content the *Aspergillus*. The total number of colonies isolated throughout the study was more in sample of ICGV00203. but both the varieties are highly infected by the *Aspergillus* and *Rhizopus*.

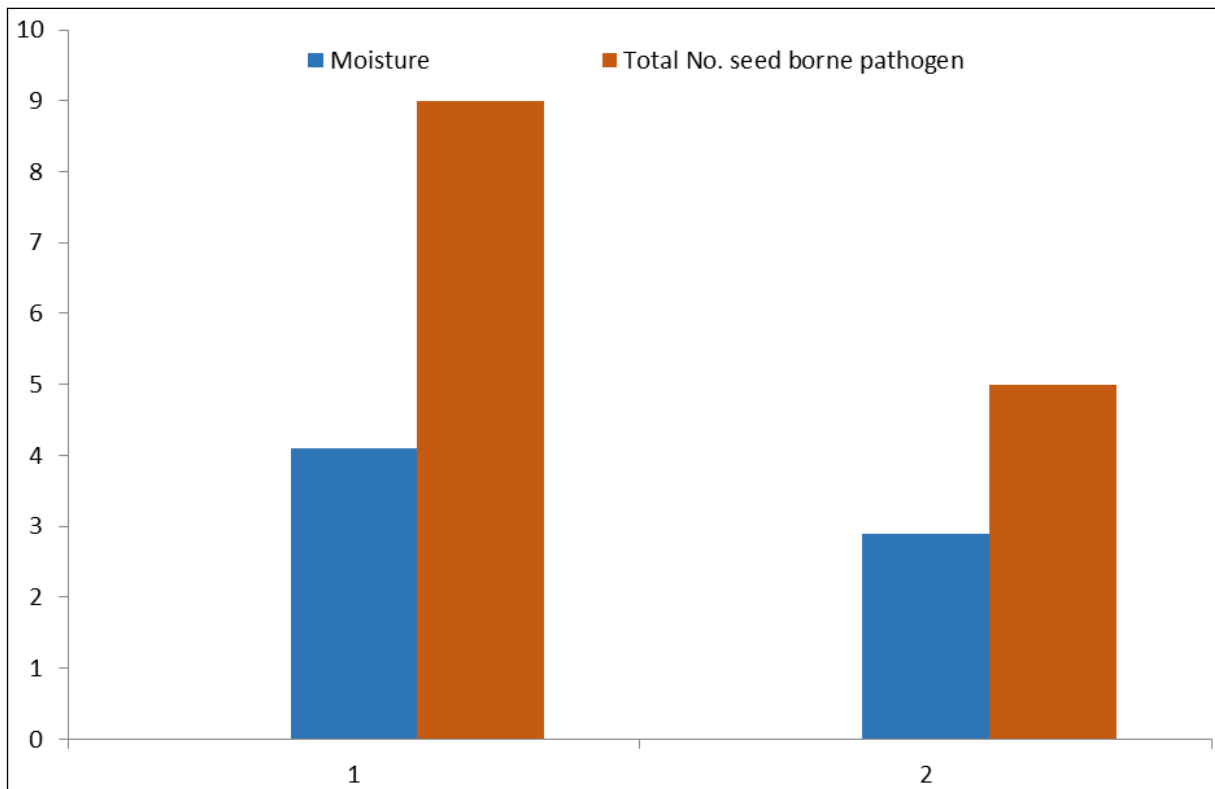
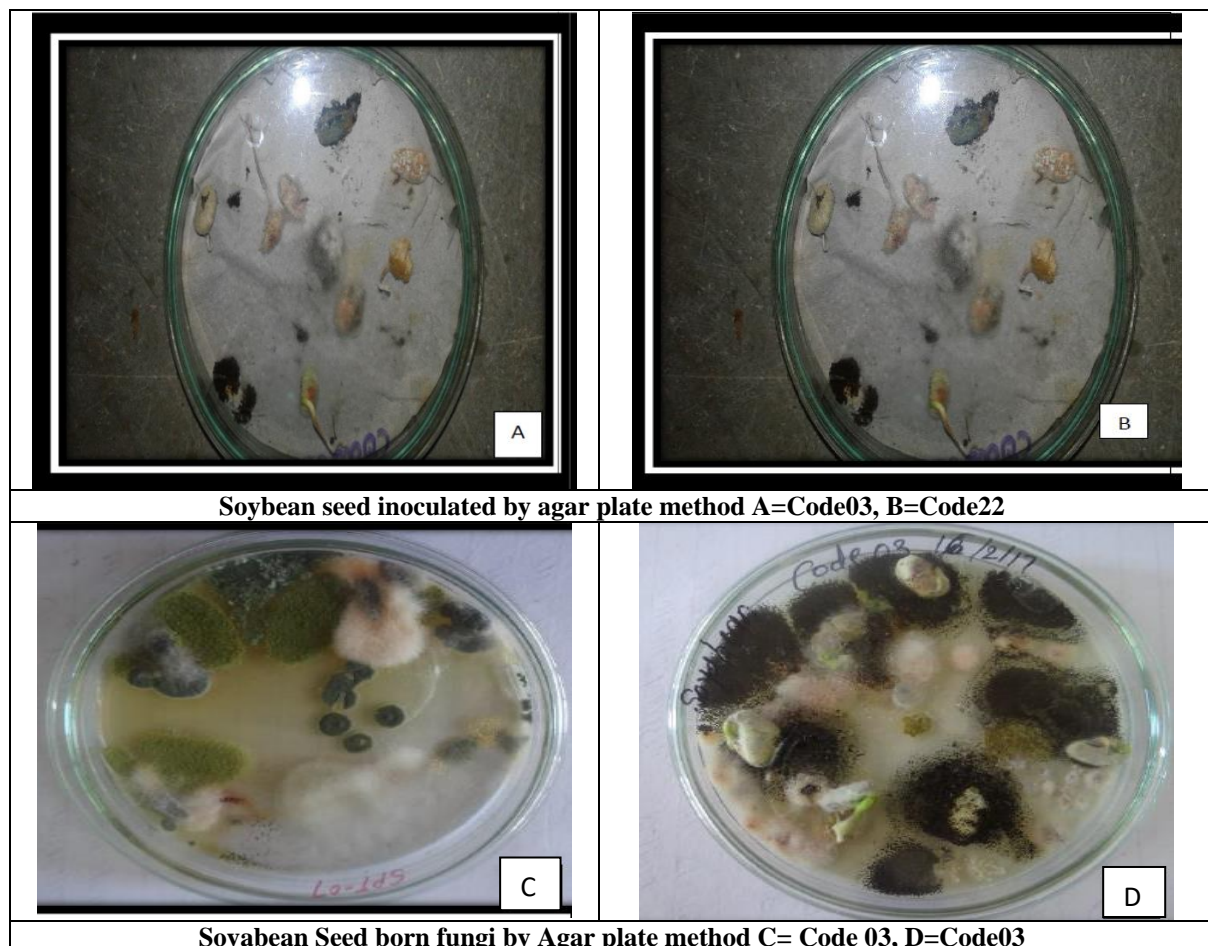
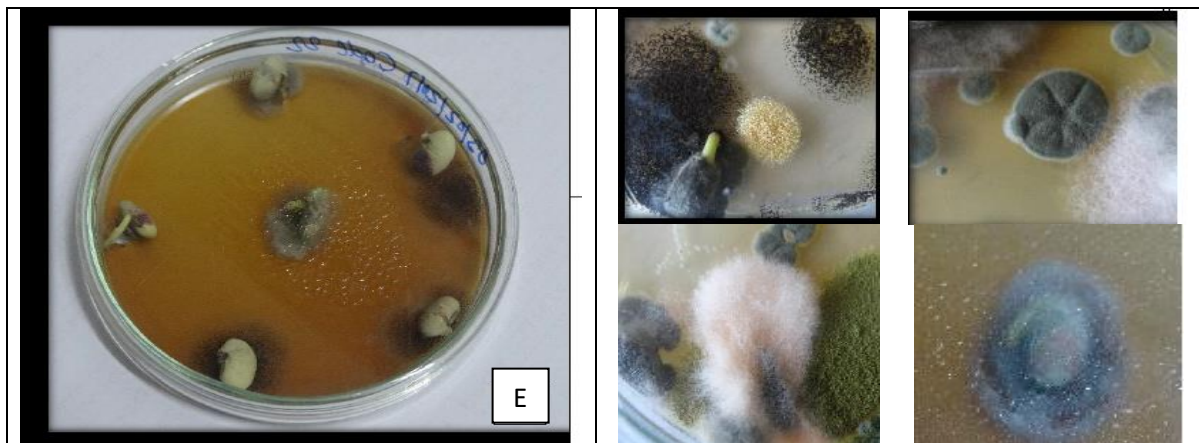


Fig 2

Acknowledgements

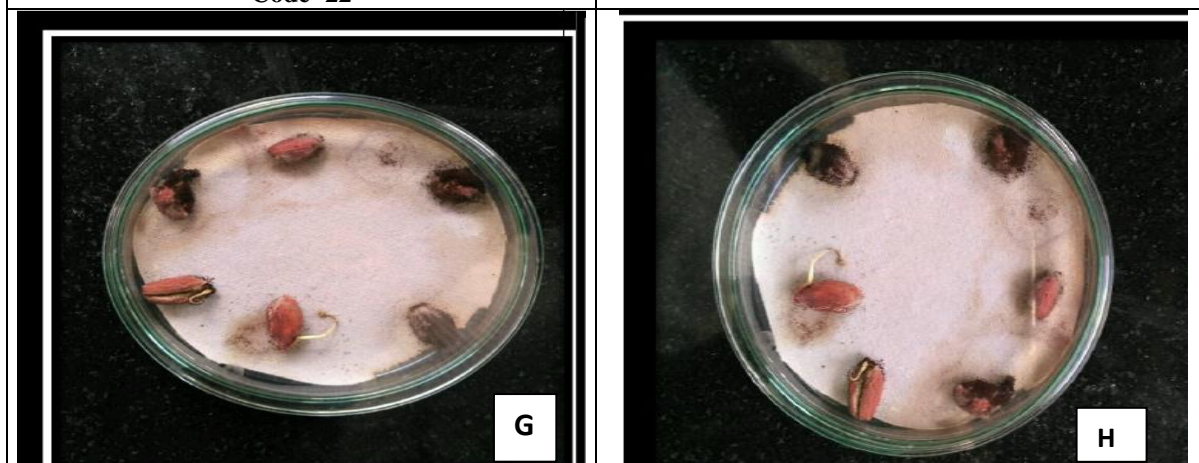
Heartly thankful to My Parents Mr.Murlidhar Agalave, Mrs.Ujjvala Agalave and my supporting brother Kapil Agalave, Mohini Salmote for their valuable help to complete my work. I would like to thank to school of life sciences, without their cooperation we can't complete our work.



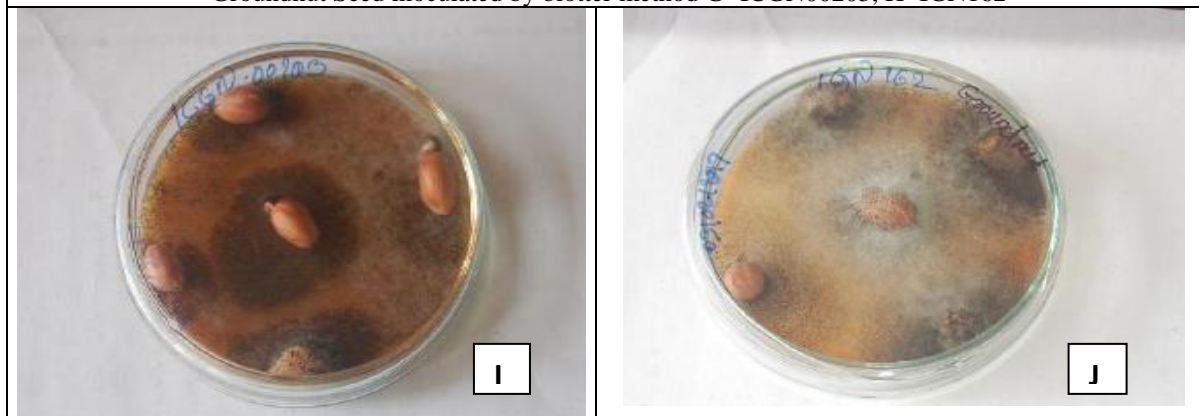


Soyabean Seed born fungi by Agar plate method
Code=22

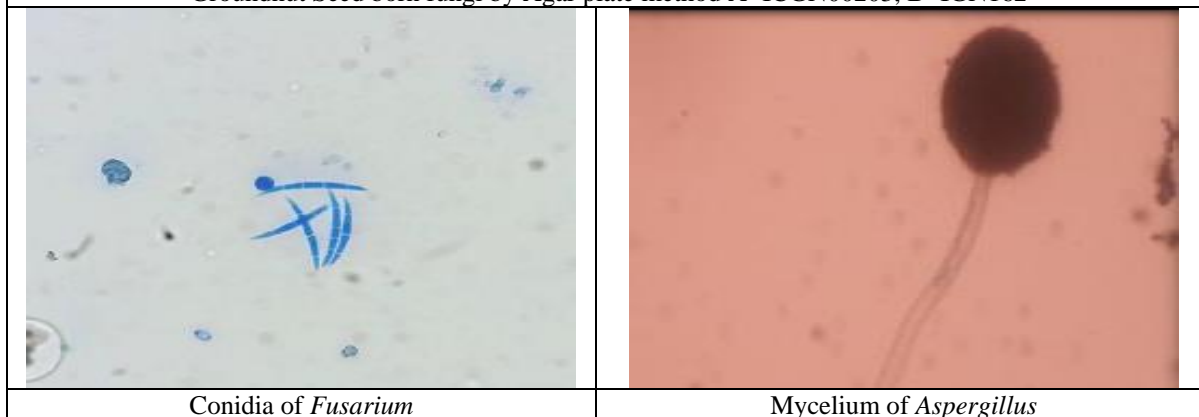
F=Different Fungal colonies



Groundnut Seed inoculated by blotter method G=ICGN00203, H=IGN162

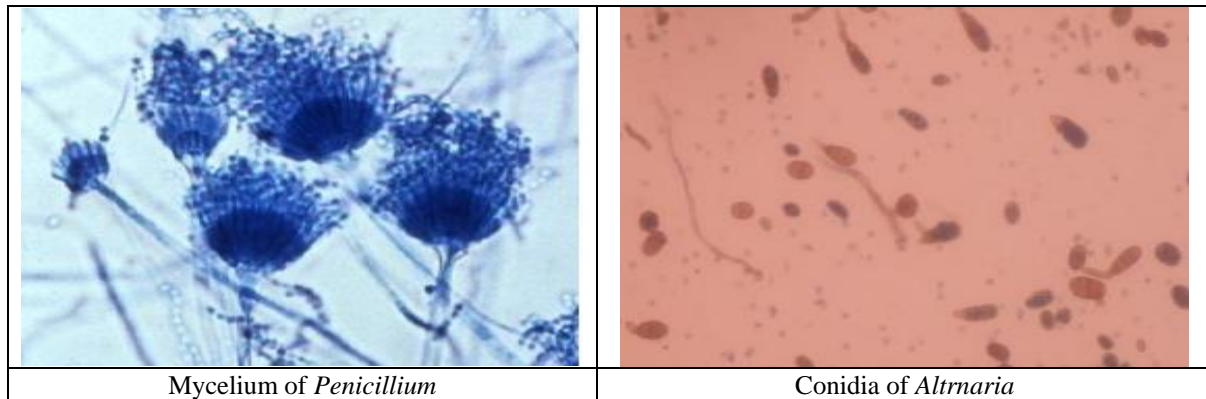


Groundnut Seed born fungi by Agar plate method A=ICGN00203, B=IGN162



Conidia of *Fusarium*

Mycelium of *Aspergillus*

**Fig****References**

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