International Research Journal of Biological Sciences _____ ISSN 2278-3202
Vol. **3(7),** 74-75, July **(2014)** *Int. Res. J. Biological Sci.*

Short Communication

Different Seed Categories of Pigeon Pea and its Seed Mycoflora

Kandhare A.S.
Department of Botany, K.M.C. College, Khopoli, Dist. Raigad, INDIA

Available online at: www.isca.in, www.isca.me
Received 16th December 2013, revised 7th February 2014, accepted 18th April 2014

Abstract

Pigeon pea (Cajanus cajan L.) seeds categorized as bold, shriveled and discoloured and its seed mycoflora was studied. Total seventeen fungi were recorded from all categories of the test seeds. Among all categories of seeds, discoloured seeds of Pigeon pea showed maximum seed mycoflora.

Keywords: Pigeon pea, seed mycoflora.

Introduction

Pigeon pea is cultivated as a mixed crop with Kharif cereals in low rainfall areas. Sowing is done in June – July and harvested after 6-8 months, between January- Februarys. It is commonly cultivated in Uttar Pradesh, Orissa, Rajasthan, Maharashtra, Bihar and Tamil Nadu. Pigeon pea contains protein 20.4 g/100 g of seeds and carbohydrates 60.4 g/100 g of seeds suggesting that it is also good source of protein and carbohydrates, it also contain thiamin (0.45mg), niacin (2-9mg) and riboflavin (0.19mg). It has better quality of fiber (7g/ 100g of seeds)[1]. Various seed borne fungi affect Pigeon pea leading to loss in quality and quantity of the seed. Texture, shape and color of the seed indicate health of seed. Overtly bold, shriveled and discolored seeds are manifestation of covert seed mycoflora. Hence bold, shriveled and discolored seeds are used to screen mycoflora.

Material and Methods

Seeds of the Pigeon pea were collected as described by Paul Neergaard[2] from different sources to make composite sample. These seeds were categoriesed into bold, shriveled, discolored and plated on Agar and moist blotter plates for fungal screening.

Moist blotter plate method: A pair of white blotter paper of 8.5 cm diameter was jointly soaked in sterile distilled water and placed in pre-sterilized borosil glass Petri-plates of 10 cm diameter. Ten seeds were placed at equal distance aseptically on the moist blotter paper. The plates were incubated at room temperature for ten days. On eleventh day the seeds were examined under microscope for the preliminary determination of seed mycoflora. The seed borne fungi found on each and every seed were isolated and identified.

Agar plate method: Twenty five ml of sterilized PDA medium of pH 5.6 poured in pre-sterilized borosil glass Petri-plate of 10 cm diameter. The Petri-plates were allowed to cool at room temperature; ten seeds of Pigeon pea were placed at equidistance under aseptic condition. After ten days of incubation the seeds were examined under microscope for the preliminary determination of seed mycoflora. The seed borne fungi found on each and every type of seed were isolated and identified.

Isolation and identification of seed borne fungi from different seed categories: The isolated seed borne fungi of test pulses were identified on the basis of colony character, texture, color and sporulation with naked eye and microscopically. Identifications were confirmed with the help of authentic manuals[3-6]. Pure cultures of the identified fungi were made and maintained on PDA (Potato Dextrose Agar) slants.

Results and Discussion

Total seventeen fungi were reported from all categories of seeds. Incidence of seed mycoflora was maximum on discoloured seeds. The predominant seed-borne fungi were *Aspergillus flavus* (80 %), *Drechslera tetramera* (70 %), *Aspergillus nidulans* (66 %), *A. niger* (63%) and *Curvularia lunata* (59%). Minimum seed mycoflora was reported by *Cladosporium* spp., *Chaetomium globosum*, *Colletotrichum truncatum* and *Rhizopus stolonifer*. Fungi like; *Chaetomium globosum*, *Colletotrichum truncatum* did not show their presence on bold seeds. *Rhizopus stolonifer* did not appear on shrivelled seeds. Rest of the fungi showed their presence on all categories in more or less quantity. Agar plate showed more fungal growth as compared to blotter plate method.

Conclusion

Different categories of seeds of pulses harbour different kinds and quantity of mycoflora. In case of Pigeon pea discoloured seeds showed maximum incidence of seed mycoflora.

Table-1
Incidence of seed mycoflora of Pigeon pea (*Cajanus cajan* L.) seeds of different categories by blotter (B) and agar (A) Plate methods (After ten days of incubation)

Sr.No	Seed mycoflora	Incidence of seed mycoflora (%)					
		Bold seeds		Shrivelled seeds		Discolored seeds	
		B	A	B	A	B	A
1	*Alternaria alternata*	05	10	15	16	20	12
2	*A. tenuis*	15	25	14	45	30	55
3	*Aspergillus carbonarius*	00	25	12	30	32	22
4	*A. flavus*	60	40	60	73	80	75
5	*A. fumigatus*	35	25	50	48	50	55
6	*A. nidulans*	30	40	42	55	48	66
7	*A. niger*	35	50	34	60	40	63
8	*Chaetomium globosum*	00	00	00	02	12	08
9	*Cladosporium spp.*	01	00	02	06	07	06
10	*Colletotrichum truncatum*	00	00	00	02	08	23
11	*Curvularia lunata*	25	18	34	45	36	59
12	*Drechslera tetramera*	39	30	70	58	40	60
13	*Fusarium moniliforme*	35	20	35	25	46	38
14	*Fusarium oxysporum*	40	30	20	40	30	40
15	*Macrophomina phaseolina*	10	00	05	15	22	28
16	*Penicillium spp.*	30	00	10	15	22	29
17	*Rhizopus stolonifer*	00	05	00	00	16	12

References

1. Shakuntala Manay, N. and M. Shadaksharaswamy: Foods: Facts and principals, Wiley eastern limited **(1987)**

2. Neergaard, Paul: Seed pathology John Villy and sons, N.Y. **I**, **(1977)**

3. Subramanian C.V.: Hypomycetes: An account of Indian species, Except *Cercospora,* ICAR, New Delhi, 930 **(1971)**

4. Neergaard P. and S.B. Mathur: University teaching of seed pathology, published by Prasaranga, University of Mysore, India **(1980)**

5. Jha D.K.: A text book of seed pathology. Vikas publishing house pvt. Ltd. New Delhi, (reprint 1995, 132) **(1993)**

6. Mukadam, D.S.: The illustrated kingdom of fungi (some selected genera). Published by Akshar Ganga prakashan, Aurangabad, India **(1997)**