

MYCOFLORA OF SOME VEGETABLES SEEDS IN WEST BENGAL

BY

P. K. PANDIT AND N. SAMAJPATI

Department of Botany, University of Calcutta,
Calcutta-700019

Key words : Mycoflora, Vegetables, West Bengal.

Seeds mycoflora of six cucurbitaceous crops was studied. The occurrence of *Fusarium* spp. and *Aspergillus* spp. were recorded on the seeds along with several species of field fungi.

INTRODUCTION

In India the loss of agricultural products by microbial attack is very high. Seeds of various crops are deteriorated by several biological agencies of which fungi are most important. Due to high humidity and temperature these fungi are able to colonise the seeds more efficiently and cause severe losses to the farmers. Seed borne diseases of agricultural crops have been excellently reviewed by Agarwal (1981). Several scientists have reported about the mycoflora and the extent of deterioration of several crop seeds from India (Sohi and Maholey, 1973; Vir, 1983; Nandi *et al.* 1982) and also on the importance of seeds in the transmission of plant pathogens (Parker and Smith, 1966).

In the present investigation an attempt has been made to record the seed borne fungi of some cucurbitaceous vegetable crops which are grown in West Bengal.

MATERIALS AND METHODS

Six common cucurbitaceous crop seeds viz, Bath sponge (*Lufta aegyptica* Mill), Bittergourd (*Momordica charantia* L.), Melon (*Cucumis melo* L.), Pumpkin (*Cucurbita pepo* Dc.), Snakegourd (*Trichosanthes anguina* L.), and Cucumber (*Cucumis sativus* L.), were collected from Bishnudasapur, north-eastern Midnapore, from representative samples of 9 lots.

One hundred seeds from each line were placed on malt agar (2%) for field fungi and salt malt (2% malt agar containing 10% NaCl) for storage fungi in petridishes and incubated for 7 days at 30°C and relative humidity of 90 per cent (De-Tempe, 1962). Ten seeds were placed in each 9 cm diameter Petredish. All fungi growing around the seeds were counted and identified by direct examination of cultures prepared aseptically from them.

RESULTS

Seven species of fungi were found on seeds of six of cucurbitaceous crops along with several species of field fungi belonging to Zygomycotina and Deuteromycotina which were grouped under 'Miscellaneous fungi'. The occurrence of seed fungi on the six crops are given in Table 1. The most frequently isolated fungi in descending order were *Aspergillus versicolor* (Vaill) Tirabosehi, *A. niger* van Tiegh, *A. flavus* L., *A. terreus* Thom and *Fusarium equiseti* (Corda) Sacc. on *Luffa aegyptica*. In *Memordica charantia*, it is *F. equiseti*, *A. niger*, *A. versicolor*, *F. oxysporum* Schlecht *A. flavus*, *Fusarium* sp. and *A. terreus*. In *Cucumis melo*, it is *A. versicolor*, *A. niger*, *A. flavus*, *A. terreus* and *F. equiseti*. In *Trichosanthes anguina* it is *F. equiseti*, *F. oxysporum* and *Fusarium* sp., In *Cucurbita sativus* it is *A. niger*, *A. versicolor*, *A. flavus*, *A. terreus*, and *F. equiseti*. However in all the crops the level of field fungi were below 50 per cent.

Table 1. Occurrence of fungi on seeds of cucurbitaceous crops produced in Bishnudasapur, Midnapore

Fungus	Percentage of infection					
	<i>Luffa aegyptica</i>	<i>M. charantia</i>	<i>C. melo</i>	<i>C. pepo</i>	<i>T. anguinea</i>	<i>C. sativus</i>
<i>Fusarium equiseti</i>	20	80	18	8	90	10
<i>F. oxysporum</i>	—	52	—	—	68	—
<i>Fusarium</i> sp.	—	48	—	—	60	—
<i>Aspergillus niger</i>	48	68	56	54	—	86
<i>A. versicolor</i>	52	57	68	42	—	72
<i>A. flavus</i>	46	48	44	28	—	64
<i>A. terreus</i>	36	40	40	18	—	48
Miscellaneous	36	28	22	20	46	28

Data are based on the study of 100 seeds of each crop. Relative humidity 90%. Temperature 30°C.

DISCUSSION

Fungi are one of the common and important agents in seed deterioration and source of several root and stem rot of seedlings of crops. Results show that the seeds of all the crops were found to carry the *F. equiseti* which was one of the most common fungus capable of causing severe seedling disease. However seeds of *L. aegyptica*, *Cucumis melo*, *Cucurbita pepo* and *Cucurbita sativus* did not have any other species of *Fusarium*. All the seeds were found to be infected with several species of *Aspergillus* except in *T. anguinea*. The incidence of *Fusarium* infection was found to be more in *T. anguinea* followed by *M. charantia*. Whereas the incidence of *Aspergillus*-infection was more in *C. sativus* followed by *M.*

charantia, *C. melo*, *L. aegyptica* and *C. pepo*. The occurrence of less number of field of fungi might be due to the infection by species of *Aspergillus* which might have eliminated the common field fungi. Further work is required to evaluate the effect of seed infection on disease development and seed production in the field.

REFERENCES

- Agarwal, V. K. (1981). Seed-borne fungi and viruses of some important crops. Research Bulletin 108. University of Agriculture and Technology, Patnagar, India.
- De-Tempe, J. (1962) Comparison of methods for seed health testing. *Proc. Inst. Seed Test Asso.* 27, 819-828.
- Nandi, D. Mandal, G. C. and Nandi, B. (1982). Studies on deterioration of oil seeds in storage. 3 Effects of different storage temperatures and relative humidities on seed moisture, germination and infection. *Seed Sci. & Technol.*, 10, 141-150.
- Sohi, H. S. and Maholey, M. N. (1973). Studies on mycoflora of watermelon seeds. *Ind. Jour. Mycol. Pl. Rathod*, 4, 25-28.
- Vir, Dharam (1983). Chemical seed treatment for controlling seed borne diseases in India. *Seed Sci. & Technology*, 11, 935-946.

(Accepted for publication January 28 1988)