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Effect of different storage periods on seed mycoflora, seed germination and seedling emergence of chilli var. LOCAL SEEDS treated with leaf powder of *Azadirachta indica*

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ABSTRACT

Total seventeen fungi were found to be associated with the seeds of chilli varieties during the present studies. The seeds of chilli var. local showed maximum seed mycoflora with maximum per cent incidence. *Aspergillus flavus, Aspergillus niger, Rhizopus nigricans, Alternaria alternata, Rhizopus stolonifer* and *Curvularia lunata* were the common and dominant seed borne fungi of chilli varieties. The common and dominant seed borne fungi were found to be inhibitory for seed germination and caused great loss in seedling vigour, seed and seedling rots of the chilli var. local. The effect of seed treatment with leaf powder of *Azadirachta indica* and different seed storage periods (0-15 months) on seed mycoflora, seed germination and seedling emergence of chilli variety local was studied. Fungal mycoflora was found to be significantly reduced on seeds treated with leaf powder of *Azadirachta indica* and stored for different periods and there was an increase in percentage of seed germination and seedling emergence up to twelve months.

Key words : Seed mycoflora, Seed germination, Seedling vigor, *Capsicum annuum*, Seedling emergence

INTRODUCTION

Chilli (*Capsicum annuum*) is grown throughout Marathwada region. It is consumed by every Indian. There is hardly a vegetable where chilli is not used as a condiment while cooking. Chillies are used green as well as dry in the powder form. It is rich source of vitamin A and vitamin C among the vegetables. The chillies are pungent due to the presence of the chemical capsaicin and the bright red colour at the ripening stage is due to the pigment capsanthin.

It has been found that due to hot and humid conditions in the region, the fruits and seeds of chilli may be covered with fungal mycelial mats, which are black orange or white in colour depending upon the specific fungus present. These fungal infections are known to cause heavy damage and impair the quality of fruits and seeds.

MATERIALS AND METHODS

Collection of seed samples:

The method described by Neergaard (1973) has been adopted for the collection of seed samples. Accordingly, seed samples of different var. of chilli (50 g each) were collected from ripe dried fruits from field, storehouses, market places and research centers. A composite seed sample for each of the varieties was prepared by mixing the individual seed samples together and preserved in gunny bags at room temperature during the studies.

Detection of seed mycoflora:

The seed-borne fungi of different varieties of seeds of chilli were detected by moist blotter (B) and agar (A) plate methods as recommended by ISTA (1966), De Tempe (1970), Neergaard (1973) and Agarwal *et al.* (1976).

Identification of seed-borne fungi:

The seed-borne fungi were preliminary identified on the basis of sporulation characters like asexual or sexual spores or fruiting structures. Detailed examination of fungal characters was done under compound microscope and their identification was confirmed with the help of related manuals (Subramanian, 1971; Neergaard and Mathur, 1980 and Jha, 1993). Pure cultures of the identified fungi were prepared and maintained on PDA (Potato dextrose agar) slants for further experiments.

Effect of culture filtrates on per cent seed germination, root length, shoot length and seedling emergence

Production of toxin was studied by growing some common and dominant seed-borne fungi of plants like *Alternaria alternata, Aspergillus flavus, Curvularia lunata* and *Fusarium moniliforme* on liquid GN medium of pH 5.6 for ten days.

Twenty five ml of the medium was poured in 100 ml Borosil glass conical flasks, autoclaved and inoculated separately with 2 ml spore suspension of the test seed-borne fungus that was maintained on PDA slants for seven days. The flasks were incubated at room temperature for ten days. After incubation, the culture filtrates were collected in pre-sterilized culture bottles