

Effect of extracts of various plant parts on seed mycoflora and seed germination of brinjal

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SUMMARY

During the present studies total seventeen fungi were found to be associated with the seeds of brinjal. The seeds of brinjal var. LOCAL showed maximum seed mycoflora with maximum per cent incidence. *Aspergillus flavus*, *Alternaria alternata*, *Rhizopus nigricans*, *Curvularia lunata*, *Rhizopus stolonifer* and *Fusarium moniliforme* were the common and dominant seed borne fungi of brinjal 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 brinjal var. LOCAL. The root stems, leaf and bark extracts of some common and easily available plants were screened for the bio-control of the seed mycoflora of the brinjal. The extract were found to be inhibitory for the incidence of seed mycoflora while with a few exceptions, they were found to be stimulatory for seed germination

Key words : *Solanum melongena*, Seed mycoflora, Seedling vigour, Seedling emergence, Plant extracts

Solanaceae family includes a large number of annual or perennial herbs, shrubs, small trees and climbers. More than seventy species belonging to twenty-one genera are found in India. Economically the family is fairly important, as it comprises several crops of food value, medicinal value, vegetables and ornamentals. Several plants of this family are cultivated all over the world for their economic importance. Brinjal – egg plant (*Solanum melongena*) is grown commonly in almost all the parts of the country and fruits are liked by both the poor and the rich as vegetables. It is available more or less throughout the year. It also contains many medicinal properties in Ayurvedic medicines. It has been found that due to hot and humid conditions in the region, the fruits and seeds of this crop may be covered with fungal mycelial mats, which are black orange or white in colour depending upon the presence of specific fungal species. These fungal infections are known to cause heavy damages and impair the quality of fruits and seeds.

In the present studies, ten local and easily available plants in the near by area were selected for their root, stem, leaf and bark extracts and the effects of these extracts on seed mycoflora and seed germination was studied.

MATERIALS AND METHODS

Collection of seed samples:

The methods described by Neergaard (1973) have been adopted for the collection of seed samples.

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Accordingly, seed samples of different varieties of brinjal (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 brinjal 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). The procedure of moist blotter (B) and agar (A) plate methods are described as below.

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 relevant literature (Subramanian, 1971, Neergaard and Mathur, 1980, Jha, 1993) and Mukadam *et al.*, 2006). 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 and shoot length and seedling emergence:

Production of toxin was studied by growing some