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Effect of different storage periods on seed mycoflora, seed germination and seedling emergence of *Solanum xanthocarpum* seeds treated with leaf powder of *Azadirachta indica*

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ABSTRACT

During the present studies total thirteen fungi were found to be associated with the seeds of *Solanum xanthocarpum*. The seeds of *Solanum xanthocarpum* showed maximum seed mycoflora with maximum per cent incidence. *Aspergillus niger, Rhizopus nigricans, Aspergillus flavus, Fusarium moniliforme, Curvularia lunata* and *Rhizopus stolonifer* were the common and dominant seed borne fungi of *Solanum xanthocarpum*. 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 *Solanum xanthocarpum*. 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 *Solanum xanthocarpum* 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 vigour, Seedling emergence

INTRODUCTION

Bhuiringani (*Solanum xanthocarpum)* is an important herbal medicinal plant for the people of the Marathwada region. It is a common prickly herb. The roots are used in cough, asthma and leaves for rheumatism.

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

MATERIALS AND METHODS

Collection of seed samples:

The methods described by Neergaard (1973) have been adopted for the collection of seed samples. Accordingly, seed samples of *Solanum xanthocarpum* (50 g each) were collected from ripe dried fruits from field, storehouses, market places and research centers. A composite seed sample 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 *Solanum xanthocarpum* were detected by moist blotter (B) and agar plate (A) 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 at 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 from the flasks by filtering the contents through Whatman filter paper No.1 and treated it as crude toxin preparation.