

## Effect of extracts of various plant parts on seed mycoflora and seed germination of tomato

S.M. TELANG

Department of Botany, Yeshwant Mahavidyalaya, NANDED (M.S.) INDIA

### ABSTRACT

Total seventeen fungi were found to be associated with the seeds of tomato. The seeds of tomato var. local showed maximum seed mycoflora with maximum per cent incidence. The common and dominant fungi recorded were *Aspergillus niger*, *Aspergillus flavus*, *Fusarium moniliforme*, *Rhizopus nigricans*, *Curvularia lunata* and *Alternaria alternata*. The common and dominant seed borne fungi were found to be inhibitory for seed germination and caused great loss in seedling vigor, seed and seedling rots of tomato var. local. The root, stems, leaf and bark extracts of some common and easily available plants were screened for the bio-control seed mycoflora associated with tomato. The extracts of all the test plants were found to be inhibitory in more or less degree for the incidence of seed mycoflora while with a few exceptions, they were found to be stimulatory for seed germination.

**Key words :** Tomato, seed mycoflora, Seed germination, Seedling vigor, Seedling emergence

### INTRODUCTION

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 of 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.

Tomato (*Lycopersicon esculentum*) is the most widely grown vegetable crop. It is grown through out the year in Marathwada region in fields, gardens, small home gardens and by market gardeners for fresh consumption of fruits (berries) as well as for processing purposes. Tomato has an outstanding vitamin contents like ascorbic acid (vitamin C), vitamin A, Thiamine (vitamin B) and riboflavin (vitamin B<sub>2</sub>). Tomato fruits are used in many ways.

In the present study, 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 were studied.

### MATERIALS AND METHODS

#### Collection of seed samples:

The methods described by Neergaard (1973) has been adopted for the collection of seed samples. Accordingly, seed samples of different var. of tomato (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 var. 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 tomato 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 related manuals (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 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