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Biodiversity of seed mycoflora on abnormal soybean variety of JS - 335 From Marathwada region of Maharashtra, India

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SUMMARY

Soybean *(Glycine max* L. Merril) has been recognized as a miracle crop, it contains about 44 % protein and 18 to 22 % oil. It is being used on large scale as a source of oil and protein. The oil is high in polyunsaturated fatty acids while the protein contains all essential amino acids as compared favourably with highest quality animal proteins. Soybean has a wide range of geographical adaptation due to its suitability to a range of soil and climatic conditions due to which it has become an important agricultural commodity. It has been cultivated throughout the world. Soybean plays a major role in the world food trade. Total twenty seven species of fungi were isolated from abnormal seed variety of JS- 335. Maximum incidence of fungi were found on discoloured seeds followed by mechanically damaged seeds and shrivelled seeds. However, small seeds and bold seeds yielded less no. of fungi.

Key words : Soybean, Abnormal seeds, Fungi

Soybean [*Glycine max* (L.) Merril] has been cultivated throughout the world and plays a major role in the world food trade. USA is the larger producer. However, India has emerged as one of the potential producers of soybean in the world. Soybean occupies an important position in agriculture and oil economy of the country. Considering its highly nutritious value it is commonly known as 'golden bean' which has become an landmark of Indian agriculture.

Fungi are mainly responsible for several types of seed abnormalities. Such abnormal seeds are not recommended for consumption as well as such seeds are rejected by seed industry. Several researchers pin point the association of mycoflora on abnormal seeds. Neergaard (1973) stated that the associated mycoflora in storage condition reduce the germinability of seeds. Shukla and Bhargava (1978) reported seed rotting of soybean due to the association of *Cladosporium herbarum*, the fungi like *Alternaria alternata, Trochethecium roseum* and *Fusarium.* Michail *et al.* (1980) observed the heavy loss due to the rotting of seeds by these isolated fungi like *Rhizoctonia solani, Macrophomina phaseolina, Fusarium equiseti* and *F. solani*. Chavan (1993) pin points the role of different fungi in discolouration. Sharma (1995) reported the maximum rotting of soybean seeds due to the association of fungi.

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MATERIALS AND METHODS

Collection of samples, detection and identification of seed mycoflora:

For the collection of seed samples, the method described by Neergaard (1973) has been adopted. Accordingly random samples of different varieties of seeds were collected from fields, store houses, market places and seed companies. A composite sample of each variety was prepared by mixing the individual samples together, preserved in cloth bags in laboratory condition at room temperature during the studies. The seed mycoflora was isolated by using Potato dextrose agar plate method (PDA) as recommended by International seed testing Association (ISTA 1966); De Tempe (1970), Neergaard (1977) and Agarwal (1976) and The identification and further confirmation of seed-borne fungi was made as per Bessey (1950), Mukadam *et al.* (2006).

RESULTS AND DISCUSSION

Abnormal seeds of variety JS-335 of soybean were employed for the association of fungi and the results are given in the Table 1. The seeds were broadly categorized into six types such as small seeds, shrivelled seeds, undersized seeds, discoloured seeds, bold seeds and mechanically damaged seeds. The results indicates that maximum incidences of fungi were found on discoloured seeds followed by mechanically damaged seeds and shrivelled seeds. However, small seeds and bold seeds