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## EFFECT OF FUNGICIDAL TREATMENTS ON THE GERMINATION AND MICROFLORA OF SUNFLOWER SEEDS\*

Sunflower (*Helianthus annuus* L.) seeds were found to be constantly associated with a number of pathogenic and nonpathogenic microorganisms. This seed-borne microflora are often responsible for the loss of viability of seeds. The present study was, therefore, taken up with a view to determine the effect of fungicides on seed germination and on the control of microflora associated with sunflower seeds.

Seeds of sunflower variety E. C. 63414 (each lot of 100) were treated with three fungicides viz. captan (N-trichloromethyl mercapto-4-cyclo-hexene-1, 2 dicarboximide) thiram (tetra methyl thiuram disulfide) and brassicol (pentachloronitrobenzene) at concentrations of 1:400. The per cent germination of seeds was recorded after two days and microflora associated with the treated and untreated seeds were determined three days after incubation on moist blotter and potato-dextrose agar medium.

The per cent germination of seeds (Table 1) was high in all the fungicidal treatments as compared to the control and there was no significant difference among the fungicides. The data on the effect of treatments on seed microflora are given in Table 2. The frequency of occurrence of fungi was low on all the treated seeds. *Alternaria* sp. and *Aspergillus* sp. were the most predominant fungi associated with the treated seeds. In the control, in addition to these fungi the frequency of occurrence of *Mucor* sp. was high. Treatment

**Table 1**

### Effect of fungicidal treatment on germination of sunflower seeds

Treatments	Per cent germination of seeds
Captan	87.00
Thiram	86.00
Brassiccol	88.00
Control	73.00

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**Table 2**  
**Effect of fungicidal treatment of sunflower seeds on the occurrence of different seed-borne fungi**

Fungi	Captan		Thiram		Brassicol		Control	
	Blotter	Agar medium	Blotter	Agar medium	Blotter	Agar medium	Blotter	Agar medium
<i>Alternaria</i> sp	53	49	15	7	32	2	93	47
<i>Aspergillus</i> sp.			27	21	50	94	72	93
<i>Mucor</i> sp.	1	23	—	—		11	32	87
<i>Diplodia</i> sp.				—		2		
<i>Fusarium</i> sp.					2	—		
Unidentified	1		2	6	2	20		
Per cent of uninfected seed	44	35	57	64	18		1	—

of seeds with thiram was more effective in eliminating seed-borne fungi than the other two fungicides and brassicol was least effective.

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