

SEED BORNE FUNGI OF *CASSIA UNIFLORA* MILL.

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The noxious *Parthenium hysterophorus* is biologically controlled by growing *Cassia uniflora*, a leguminous undershrub of South American origin. Only five percent seeds of *C. uniflora* germinated under natural conditions due to seed coat imposed dormancy. However, seeds with slight mold incidence showed enhanced seed germination up to 49-50 per cent. The mycoflora on seed and podwall showed similar fungi with variations only in percentage of fungi encountered.

Keywords : *Parthenium hysterophorus*; *Cassia Uniflora*; seed borne fungi.

Cassia uniflora Mill., a leguminous annual undershrub of Tropical American origin, has received considerable attention recently in India because of its ability to suppress the growth of the obnoxious weed *Parthenium hysterophorus* L. (Singh, 1983; Joshi and Mahadevappa, 1986; Joshi, 1989). The seeds of *C. uniflora* germinated only up to 4-5% under natural conditions because of the seed coat imposed dormancy (Jayakumar, 1985; Vasudevan, 1986). However, the seeds with slight mold incidence on their seed-coats germinated up to 40-50% in their natural course. Hence investigations were carried out to study the seed mycoflora of *C. uniflora* to elucidate their possible role in breaking the seed dormancy.

Apparently looking pods and the pods showing external mold growth were collected from the field and stored separately in gunny bags. For enumeration of mycoflora, seeds and their pod walls were plated separately on moistend blotter paper. In each case, 50 seeds were surface sterilised with 0.1% mercuric chloride for one minute and 50 non-surface sterilised seeds were plated separately and incubated at $25 \pm 2^\circ\text{C}$. Similarly, pod walls were also incubated but without surface sterilisation. After five days of incubation, the seeds and pod walls were transferred on to potato dextrose agar slants and further identified.

The mycoflora on seed and pod wall of *C. uniflora* (Table 1) showed

Table 1. Percentage of seeds pod walls yielding various fungi when plated on moist blotter paper.

	<i>Aspergillus</i> <i>A. niger</i>	<i>sp</i> <i>A. flavus</i>	<i>Penicillium</i> <i>sp</i>	<i>Rhizo-</i> <i>pus</i> <i>nigricans</i>	<i>Fusa-</i> <i>rium</i> <i>solani</i>	<i>Alter-</i> <i>naria sp</i>	Sterile fungi
Molded Seeds	N.S. 41	32	39	31	11	7	14
	S.S. 21	11	21	11	—	3	3
Molded Pod walls	N.S. 58	39	44	21	4	3	12
Apparently healthy Seeds	N.S. 12	8	14	39	6	7	8
	S.S. 3	4	2	14	2	2	4
Pod Walls	N.S. 17	19	31	21	7	4	10

N.S.—Non surface sterilised: S.S.—Surface sterilised.

wide variations in the percentage of fungi isolated, although the fungi encountered were similar. The mycoflora of the podwall showed a high percentage of contamination by *Aspergillus* spp. and *Penicillium* sp. was also more on pod walls than on seeds. Nearly 50% of the fungi were eliminated when seeds were surface sterilised, indicating their presence only as external contaminants. *Fusarium solani* and *Alternaria* sp. were the other common fungi encountered apart from *Penicillium* sp. and *Rhizopus nigricans*. The predominant fungi were two species of *Aspergillus* namely, *A. niger* and *A. flavus*. *Fusarium solani* and *Alternaria* sp. were also observed as external contaminants and their percentage got reduced drastically after surface sterilisation.

The healthy dry seeds showed as less as 4.5% germination in their natural course. Seed scarification by either wet method (Jayakumar, 1985) or dry method (Vasudevan, 1986) resulted in significant increase in germination percentage indicating that the dormancy is external and seed coat imposed. Thus, the predominant mycoflora specially *Asper-*

gillus spp. and *Rhizopus nigricans* as external seed contaminants may help in damaging the seed coat, thus facilitating the absorption of water and thereby increasing the germination percentage. Further investigations are needed to conclude whether these universal seed contaminants have any role in breaking dormancy through enzymatic reaction (Bahl and Agrawal, 1969; English and Albersheim, 1969), thereby facilitating the moisture absorption by the seeds which results in enhanced germination percentage.

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