

## Changes in Protein Content of Mustard and Taramira Seeds due to Fungal Infestation

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*Brassica juncea* and *Eruca sativa* are important oilseed crops of Rajasthan. The seed carries a wide range of pathogens which cause heavy losses in yield as well as quality of the seeds. Storage fungi decrease germinability, colouration of some part, heating and mustiness, in weight and the biochemical composition of seeds (Bilgrami *et al.* 1981, Dube *et al.* 1988). *Aspergillus flavus*, *Alternaria alternata*, *Drechslera tetramera*, *Fusarium moniliforme* and *Penicillium pinophilum*, were found to be associated with seeds of mustard and taramira. The present investigation reports the changes in protein content in mustard and taramira seeds due to infestation by these fungi.

Seeds of mustard and taramira were artificially inoculated with spore suspension of *A. flavus*, *A. alternata*, *D. tetramera*, *F. moniliforme* and *P. pinophilum* separately as described by Ashtraf and Chaudhary (1986). Their protein content was estimated following Bradford (1976) after 7, 14, 21 and 28 days of inoculation.

Seeds of mustard (cv *Vanana*) and taramira cv T-27 showed steady and gradual decrease in total protein when inoculated with the above mentioned five fungi (Fig. 1). The decline continued with prolongation of the incubation period. The protein content of the seeds of mustard and taramira was 25.8% and 24.5% respectively before infestation and it remained constant till the end of the incubation period. In all the infested seeds, the decline was evident from 7th day of incubation. *A. flavus* inoculated seeds showed maximum deterioration (29.5%) followed by *P. pinophilum* (23.5%). The decrease was gradual and continuous from 7th day to 21st day of incubation, but on 28th day there was slight increase in protein content with *A. flavus* (36.0%) and *P. pinophilum* (30.5%). *A. alternata* and *F. moniliforme* caused moderate decrease (18.7%) in protein content while *D. tetramera* caused slight decrease (5.5%) in protein content of these seeds over control. Thus, in the infested seeds, the decline was more obvious in mustard (Fig. 1) than in taramira.

The studies on protein content during fungal infestation revealed that there was gradual decline in protein content with *A. flavus* and *P. pinophilum*. This may obviously be due to their utilization by the fungi. This decrease in protein content in the seeds are in accordance with Bilgrami *et al.* (1981) and Dube *et al.* (1988). A slow decrease in protein content was noted in case of *A. alternata* and *D. tetramera* and this may be attributed partly to the reduction in the growth of the fungus which makes the organism unable to act freely upon the substrate to bring about the fast reduction in it. The increase in the protein contents in later phase, might be due to accumulation of fungal protein. A similar increase in protein content of fungal infested peanut and arhar seeds (Cherry *et al.* 1975) have also been observed.

### References

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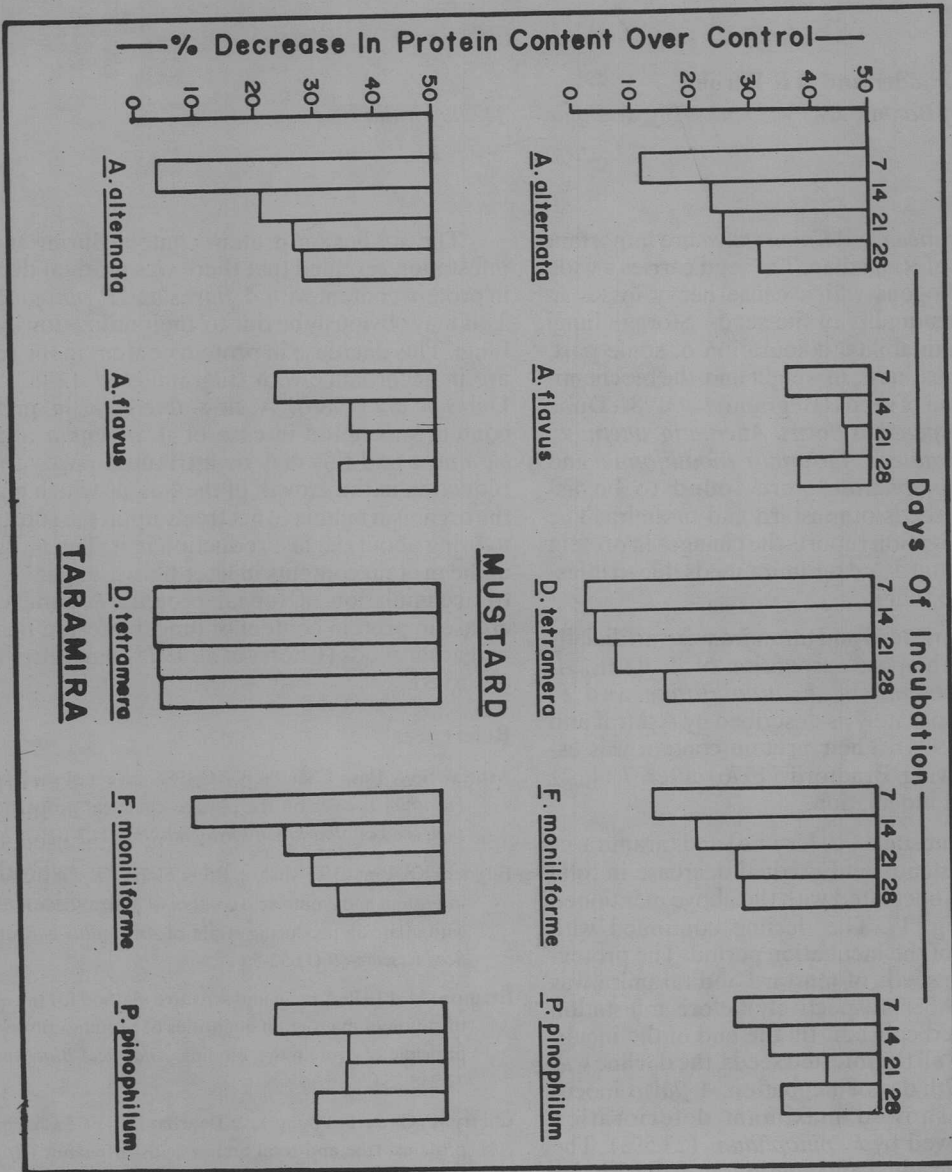


Fig 1 Decrease in protein content over control in mustard and taramira seeds due to fungal infestation

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