

DETECTION OF *FUSARIUM MONILIFORME* SHELDT., THE CAUSE OF SEEDLING WILT OF RICE

S.A. JAMIL KHAN, M. JALALUDDIN*
A. GHAFAR* AND A.K. KHANZADA

*Crop Diseases Research Institute, PARC,
Karachi University Campus, Karachi-75270, Pakistan.*

Among the pathogenic fungi, *Fusarium moniliforme* Sheld., has been found widely distributed in seeds of different rice cultivars in Pakistan causing wilt of seedlings (Khan *et al.*, 1974). Using blotter or agar plate methods, it has been usually difficult to detect and isolate *F. moniliforme* in pure culture due to the growth of other seedborne fungi such as *Alternaria* spp., *Curvularia* spp., *Drechslera* spp., and *Fusarium* spp., on rice seeds (Khan *et al.*, 1988). A comparative study was therefore carried out to find more suitable method by which *F. moniliforme* could be detected and isolated in pure culture from rice seeds.

Seeds of 10 rice varieties collected from different parts of Sindh and Punjab were examined using blotter, agar plate, deep freezing methods as recommended by ISTA (1976) and the modified Czapek-Dox agar as suggested by Sharma & Singh (1973). Seeds were surface disinfected with 1% NaOCl. Untreated seeds were kept as control. After 7 days incubation, each seed was examined under the stereoscopic microscope for the characteristic chain of microconidia of *F. moniliforme*. The agar plate, Czapek Dox agar, blotter and deep freezing methods showed significant ($p < 0.001$) differences in different rice cultivars for the isolation of *F. moniliforme* both in surface disinfected and untreated seeds. Interaction of isolation methods, cultivars and surface disinfection were also significant ($p < 0.001$). Where agar plate method was used, the per cent incidence of *F. moniliforme* on non-sterilized infected rice seeds ranged from 0.2-2.2% and sterilized infected rice seeds from 0-1.5% with an average of 0.74 to 1.38%, in blotter method from 0.2-3% and 0.5-4.5% with an average of 1.76 to 2.38%; in deep freezing method from 0.5-4.2% and 1.0-6.7% and in Czapek Dox agar from 0.5-2% and 1-3% with an average of 1.09-1.83% (Fig.1). Since detection of *F. moniliforme* was high where deep freezing method was used, it should be preferred for the detection of *F. moniliforme* in rice seed health testing laboratory.

*Department of Botany, University of Karachi, Karachi-75270, Pakistan.

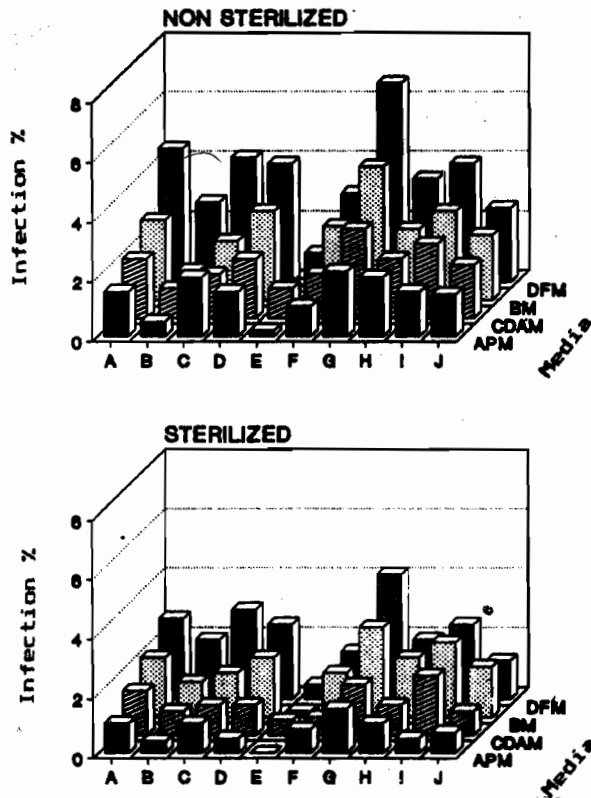


Fig.1. Infection percentage of *Fusarium moniliforme* in seeds of 10 rice cultivars as recorded by four testing techniques.

A = IR-6, B = IR-8, C = DR-82, D = DR-83, E = B-198, F = B-370, G = BS-385, H = K-282, I = Sindh Basmati, J = Sada Hayat. APM = Agar Plate method, MCDA = Modified Czapek-Dox Agar method, BM = Blotter method, DFM = Deep Freezing method.

LSD_{0.05} (Isolation method) = 0.14, LSD_{0.05} (Varieties) = 0.23, LSD_{0.05} (Condition) = 0.1.

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