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Short Communication

Fungi Recorded on Exotic Rice Germplasm

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A large number of germplasm samples of rice are being exchanged throughout the world for utilization in crop improvement programmes and such exchange has an inherent risk of introducing exotic pests and pathogens as well as virulent races/ strains of the existing ones. Seed-borne pathogens of major importance in rice seed are *Pyricularia oryzae, Drechslera oryzae, Alternaria padwickii, Fusarium monilforme, Fusarium graminearum, Tilletia barclayana, Cercospora oryzae, Balansia oryzae, Rhizoctonia solani* and *Ustilagenoidea virens* (Richardson, 1978).

Pathogens intercepted during quarantine processing at Quarantine Laboratory of NBPGR in the past include *Alternaria padwickii* in germplam from Philippines and USA; *Drechslera oryzae* in germplasm from Netherlands, Nigeria, Philippines, UK, USA, Zambia and Zimbabwe; *Tilletia barclayana* and *Ustilagenoidea virens* in germplasm from Philippinnes (Anonymous, 1987).

During the early part of 1988, a consignment of rice germplasm comprising of 1024 samples was received from International Rice Research Institute, Philippines. Each sample consisted of about 200-300 seeds and these were individually examined for fungal mycoflora by 'Blotter Method' wherein 25 seeds per sample were plated due to less number of seeds in each sample.

A total of 11 fungi were found to be associated with these germplasm samples out of which *Alternaria padwickii, Drechslera oryzae, Curvularia* spp., *Fusarium monliforme, F. solani* and *Gerlachia oryzae* are of economic importance and *Gerlachia oryzae* has been intercepted for the first time.

Alternaria padwickii was predominant fungus found to be associated with 35.5 per cent samples and range of infection varied from 4-64 per cent. This was followed by *D. oryzae* and *G. oryzae* with 4-32 per cent and 4-20 per cent infection range, respectively, in 5.3 per cent samples, and *Nigrospora* spp. in 0.4 per cent samples with 4-36 per cent infection range. Infection due to *Fusarium semitectum, F. solani, F. equiseti* and *Alternaria longissima* were almost neglible, infection ranging from 0.4-1.6 per cent only.

Drechslera oryzae, the causal organism of brown spot disease, was responsible for the heavy crop losses in 1942, wherein more than 2 million people died of starvation. Heavy losses due to this pathogen were also reported from Nigeria, Japan and Surinam (Ou, 1985). Pathogenic variability in *D. oryzae* has been reported from Japan, Pakistan and India (Sakamoto, 1934; Nawaz and Kausar, 1962; Misra and Chatterjee, 1963).

Alternaria padwickii, the causal organism of stack burn, has caused considerable losses in Kerala and West Bengal (Rangaswami, 1975). Mathur *et al.* (1972) observed upto 80 per cent seed infection of *A. padwickii* in seed samples collected from 11 different countries in Africa and Asia. Similarly, high percentage (64 per cent) seed infection by *A. padwickii* was observed in the present study.

Gerlachia oryza which causes leaf scald was recorded in more than 2 per cent samples. Leaf scald had reached epidemic proportions in Japan in 1967 and now it is a serious threat in other parts of Asia and Africa (Lamey and Williams, 1972). Yield losses upto 30 per cent have been reported due to this pathogen from Bangladesh (Bakr and Miah, 1975).

Fusarium moniliforme, the casual organism of bakane disease was intercepted in 2.3 per cent seed samples and the range of infection varied from 4-12 per cent. In India, yield losses due to this disease are 1/3rd than what have been reported in other parts of the world (Ou, 1985).

Although, almost all these pathogens recorded during the present studies are known to occur in India, new races can get introduced which may pose serious threat to rice cultivation in the country. Ae such we must take all required precautions including seed treatment so that only healthy germplasm material is introduced for our crop improvement programmes.

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