

OCCURRENCE OF *GERLACHIA ORYZAE* (HASHIOKA & YOKOGI) W. GAMS (SYN. *RHYNCHOSPORIUM ORYZAE* HASHIOKA & YOKOGI) ON RICE SEEDS IN PAKISTAN

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Gerlachia oryzae (Hashioka & Yokogi) W. Gams (Syn. *Rhynchosporium oryzae* Hashioka & Yokogi), a dematiaceous fungus is wide spread in the rice growing areas of the world (Baker & Miah, 1975; Miah *et al.*, 1985; Ou, 1985). It is seed-borne and is known to cause leaf scald and also ear blight which produces sterility of the grains (Hashioka & Ikegami, 1955; Naito, 1982). During the course of our studies on the location of fungi in different parts of seed, *G. oryzae* was also detected on rice seeds which does not appear to have been previously reported from Pakistan (Mirza & Qureshi, 1978).

Using component plating method (Mathur *et al.*, 1975), 200 seeds of each of the 5 different rice varieties viz., Basmati 370 RI-6, IRRI-8, C-622 and DD-91 were soaked in sterilized distilled water in test tubes. After 30 minutes the seeds were taken out, spread over Whatman filter paper and dissected aseptically under a stereobinocular microscope. Each component of the seed such as husk, endosperm and embryo were surface disinfected in 1% sodium hypochlorite solution (NaOCl) for 5 minutes, washed in water and then placed on wet blotters in Petri dishes. After 7 days incubation under 12 hours alternating cycles of ADL and darkness at 24°C ± 1°C, the seed parts were examined for fungal infection.

G. oryzae was found both from external and internal components of the seeds ranging from 0.1 - 0.3% in embryo, 1.2% in endosperm and upto 8.4% infection in husks as compared to 7.5% infection in husks without dissection. *G. oryzae* was thus found both on the external and internal components of the seeds. Maximum infection in rice variety C-622 was observed followed by DD-91, IRRI-8, Basmati-370 and IRRI-6.

In another experiment, 4 different incubation methods viz., blotter, deep freezing, potato dextrose agar and Czapek Dox agar plate (Anon., 1976) were used to find the best method for the detection of *G. oryzae* in 10 varieties of rice seeds. The frequency of occurrence of *G. oryzae* in seeds was found maximum in deep freezing method (2-7.6% with an average of 4.2%) followed by blotter method (1.4-7.0% with an average of 3.9%), agar plate method (1.3 - 3.4% with an average of 2.24%) and Czapek-Dox agar method (1.8-4.0% with an average of 2.67%). Since detection of *G. oryzae* was high where deep freezing method was used, it should be preferred for the detection of *G. oryzae* in rice seed health testing laboratory.

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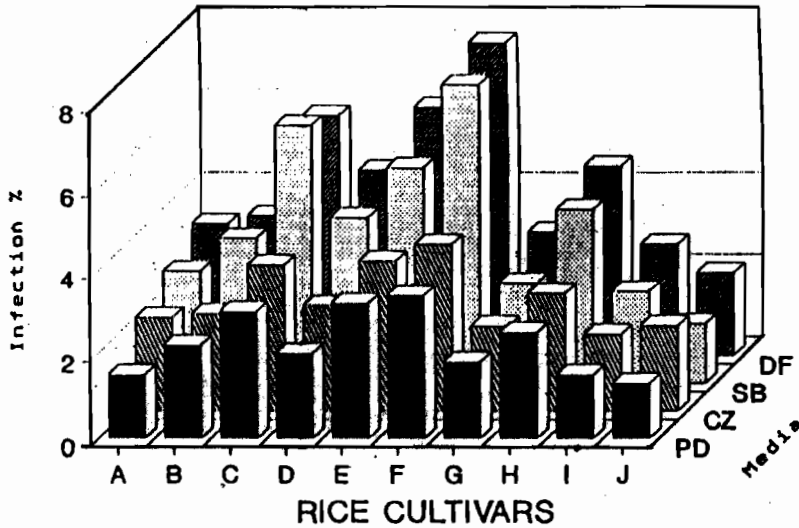


Fig.1 Detection of *Gerlachia oryzae* in seeds of 10 rice cultivars using 4 testing methods.

A = Basmati-370, B = IRRI-6, C = IRRI-8, D = C-622, E = DD-91, F = B-385, G = DR-82, H = DR-83, I = K-282, J = Jhona, PD = Potato Dextrose Agar, CZ = Czapek-Dox Agar, SB = Standard Blotter method, DF = Deep freezing method.

LSD_{0.05} (Isolation methods) = 0.49

LSD_{0.05} (Cultivars) = 0.78.

References

- Anonymous. 1976. International Seed Testing Association. International rules for seed testing. *Proc. Int. Seed Test. Assoc., Norway*, 4: 3-49.
- Baker M.A. and S.A. Miah. 1975. Leaf scald of rice, a new disease in Bangladesh. *Pl. Dis. Reporter*, 59: 909.
- Hashioka, Y. and H. Kegam. 1955. The leaf scald of rice. Paper dedicated to Prof. Y. Tochinani and Prof. T. Fukushi for the commemoration of their both birthdays, pp. 65-70 (*Review of Applied Mycology*, 34, 482).
- Mathur, S.K., S.B. Mathur and P. Neergaard. 1975. Detecton of seed-borne fungi in sorghum and location of *Fusarium moniliforme* in seed. *Seed Sci. & Technol.*, 13: 683-690.
- Mia, M.A.T., S.B. Mathur and P. Neergaard. 1985. *Gerlachia oryzae* in rice seed. *Trans. Br. Mycol. Soc.*, 84: 337-338.
- Mirza, J.H. and M.S. Qureshi. 1978. *Fungi of Pakistan*. Department of Plant Pathology, University of Agriculture, Faisalabad, Pakistan. 311 pp.
- Naito, H. 1982. Studies on the mechanism of infection of rice plants by brown spots. *Bull. Tohoku National Agric. Exp. St., Tohoku, Japan*, 66: 101-210.
- Ou, S.H. 1985. *Rice diseases*, 2nd Ed. C.A.B. Kew Surrey, England, 300 pp.

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