

## Studies on *Curvularia specifica* (Brainer) Boedijn inciting collar rot and blight of wheat in Maharashtra State, India.

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### Introduction:

While attempting isolations from the foot-rot affected specimens of wheat in 1954—55, some specimens were found affected by collar rot expressing typical blackening. Repeated isolations from these had always yielded a pathogenic species of *Curvularia*.

Hyne (1935) reported several fungi including *Helminthosporium tetramera* (= *Curvularia specifica* (Brainer) Boedijn) associated with root-rot disease of wheat. Chattopadhyaya (1953) also reported *C. specifica* causing root-rot of wheat seedlings in West Bengal, India. Since no much work on this fungus was done, the work now reported was undertaken during 1958—60.

### Material and Methods:

The pathogenic isolate of *Curvularia* was obtained on potato dextrose agar from the specimens of 'Vijay' a *durum* variety of wheat. The pathogenicity of the isolate was easily proved on the seedlings of *Vijay* variety of wheat by spraying the spore and mycelial suspension of the isolate. The studies on the varietal resistance, cultural and physiological characters were undertaken.

### Results:

The fungus incited symptoms on leaves, leaf sheaths and stems of the seedlings and adult wheat plants. On leaves and leaf-sheaths, grayish blotches were developed which enlarged and resulted in withering and drying. Grayish necrotic areas were predominant on stems, particularly at the nodes. Typical blackening was developed at the collar. Affected plants ultimately withered and dried and appeared as if affected by a foot-rot disease. The fungus was pathogenic on cotton, *Coriandrum sativum* L., sann hemp (*Crotalaria juncea*, L.) cabbage, *Phaseolus lunatus* L., oats, *Cynodon dactylon* Pers., *Peucedanum graveolens*, Benth.,

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*Cyamopsis psoraloides* D. C. and paddy besides wheat and non-pathogenic on *Cicer arietinum* L., tobacco, potato, *Sorghum vulgare* L., *Pennisetum typhoides* Stapf. and *Ricinus communis* L. Of the 33 varieties of wheat tried, tolerance to the fungus attack was exhibited by the following varieties — N. P. wheats (Indian Agricultural Research Institute, New Delhi) — 111, 165, 715, 758, 764, 770, 771, 790, 792, 798, 799, 817, and B. N. 177; Parbhani wheats (Maharashtra State, India) — P. W. 1, 5, 6, 7, 8, 10, 13 and 20; Niphad wheats — (Maharashtra State) — K. G. 4—3 and Kenphad - 25 and Gujarat State wheat — A. 200.

The fungus hypha was hyaline when young but later turned olive green. The width was  $5.2\ \mu$ . Conidiophores were simple, mostly erect but at times were irregular, slightly flexuous hyaline to pale yellow and measured  $90-286 \times 5-10\ \mu$ . Conidia from the host measured  $21-44 \times 7-12\ \mu$ , while those from culture on potato dextrose agar were  $13-24 \times 6-10\ \mu$ . Chlamydospores measured  $8-20\ \mu$ .

The fungus could from abundant growth on potato dextrose agar, moderate on wheat seed and plant decoctions and on Richards' medium. The optimum temperatures ranged between  $26^{\circ}$  and  $30^{\circ}$ . It favoured almost all carbon compounds except salicin. In dextrin, however, good sporulation was obtained. The best nitrogen source was available from potassium nitrate, peptone, asparagine and glycine. It produced diastase, trypsin, inulase and cytase in large quantities and formed best growth between pH 5.7 and 5.9.

On basis of the morphological characters, the fungus was identified as *Curvularia specifera* (Brainer) Boedijin.

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Artikel/Article: [Studies on \*Curvularia specifera\* \(Brainer\) Boedijn inciting collar rot and blight of wheat in Maharashtra State, India. 181-182](#)