

OCCURRENCE OF RACE 'T' OF *DRECHSLERA MAYDIS*
(NISIKADO) SUBRAM. & JAIN ON MAIZE IN WEST BENGAL
BY

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The occurrence of a new race 'T' of *Drechslera maydis* on some maize cultivars is reported from the plains of West Bengal (eastern India). The race might have been transmitted through seed of an exotic variety CIMMYT bulk-5 from USA.

Key words : *Drechslera maydis*, Race, Maize, eastern India.

INTRODUCTION

Leaf spot caused by *Drechslera maydis* (Nisikado) Subram. & Jain [*Cochliobolus heterostrophus* (Drechsler) Drechsler] is one of the major diseases of maize (*Zea mays* L.) in India particularly in hot and humid areas where it causes appreciable damage to this crop under favourable condition (Payak and Sharma, 1982). In the plains of West Bengal the disease occurs during the *kharif* season (July to September).

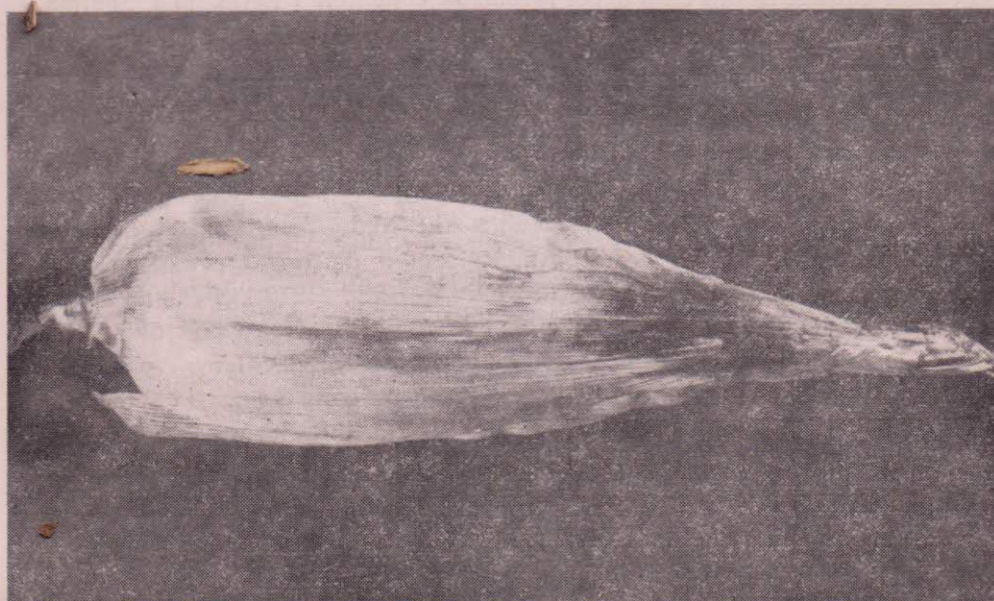
The most widely prevalent race of this pathogen that infects maize in India is race 'O' although race 'T' has been reported once or twice in a very limited cases.

Munjal and Kapoor (1960) for the first time reported presence of race 'T' from India. However, during 1985 *kharif* season at the Maize Experimental Farm of Bidhan Chandra Krishi Viswavidyalaya, Kalyani a different types of symptom resembling those produced by race 'T' (Hooker et al. 1970) of *D. maydis* was noticed on the different plant parts of a maize cultivar CIMMYT bulk-5 imported from USA. Apart from lesions produced on different plant parts fungal sporulation was also noticed on the apical parts of the bracts covering the cob i.e., the husk covers (Fig. 1) as well as on the kernels. The pathogen was isolated from the infected plant and its cultural and morphological features were compared (Table I) with the already prevalent race 'O' on potato dextrose agar (PDA).

Seeds from the infected cobs were planted during the next *kharif* season and in about 5 weeks the seedlings showed sign of wilting and died. The pathogenicity of the fungus was finally tested on a Tcms line following whorl inoculation method by using fungal suspension when the plants were 45 days old (Sharma, 1982). The inoculations were repeated thrice at weekly interval and the data on the disease

Table 1. *Cultural and morphological distinction of the two races of D. maydis on PDA medium.*

Race of <i>D. maydis</i>	Cultural character	Morphological character
•O•	Colonies were dark olive grey when grown at $29\pm 1^\circ\text{C}$ under continuous illumination. Maximum sporulation was noticed at $26\pm 1^\circ\text{C}$ in continuous light and $29\pm 1^\circ\text{C}$ in continuous darkness.	Conidiophores in groups often form flat dark brown to black stromata, straight or flexuous, mid dark brown, pale near the apex, smooth, 300 to 700 μm long, 5 to 10 μm thick. Conidia distinctly curved, fusiform pale to mid dark golden brown, smooth, with 2 to 11 pseudosepta, mostly 72 to 165 μm long, 15 to 20 μm thick in broadest part.
•T•	Colonies were white when grown at $29\pm 1^\circ\text{C}$ under continuous illumination. Maximum sporulation was noticed at $22\pm 1^\circ\text{C}$ under continuous light and $26\pm 1^\circ\text{C}$ under continuous darkness.	Conidiophores in groups form flat, dark stromata, straight or flexuous, mid dark brown, slightly pale near the apex, smooth, 275 to 650 μm long, 4.5 to 9.5 μm thick. Conidia distinctly curved, fusiform, mostly, dark brown, smooth, with 3 to 10 pseudosepta, mostly 65 to 150 μm long, 12.5 to 18.0 μm thick in the broadest part.

Figure 1. *Sporulation of Drechslera maydis race 'T' on the apical part of the husk cover*

incidence were recorded after silking on the basis of 1 (very slight to slight infection) to 5 (very heavy infection) scale (Payak and Sharma, 1982). A heavy infection (lesions abundant) developed on different plant parts (leaves, stalks, leaf sheaths, ear husks, ear and cobs) in such case. The pathogenicity was further tested on some other maize cultivars EV IV CDY (Alm), EV VII CDY (Alm) and EV VIII (CDY). But moderate infection (lesions abundant on lower parts and few on upper parts) developed in such cases. The prevailing race 'O' when tested, however, did not show any differential pathogenicity on either Toms cultivar or cultivars carrying normal cytoplasm and it produced typical lesions on leaves only.

In India, race 'T' of *D. maydis* was first intercepted on sorghum seeds from USA (Nath *et al.*, 1973). It has been also recorded on seeds of non-maize hosts such as *Phaseolus mungo*, *Vigna sinensis* and *Paspalum scrobiculatum* (Fatima *et al.*, 1974). Although in the subsequent years this race has been recorded on maize experimental hybrids 2310 and 2320 from Ludhiana, Punjab (Khehra *et al.*, 1976 ; Sharma *et al.*, 1978) this appears to be the first report of a race 'T' of *D. maydis* on maize from this part of the country (eastern India). It is suspected that the race might have been carried through seed during its transit from USA.

ACKNOWLEDGEMENT

Grateful thanks are due to Dr. Joginder Singh, Ex-Project Coordinator, All India Coordinated Maize Improvement Project for supplying the seed materials.

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(Accepted for publication June 3 1989)