

## A new species of *Drechslera*

Om PRAKASH & A. P. MISRA

Rajendra Agricultural University, Dholi — Pusa (Bihar) India

### Introduction

*Drechslera* species are of considerable economic importance on account of the diseases which they cause in graminaceous and other hosts throughout the world. In India, several species of *Drechslera* parasitising grasses have been reported. Some of these might act as a source of inoculum for fresh infection to various economic hosts (MISRA, 1973).

In the course of surveying *Drechslera* spp., the authors observed a new species infecting *Eragrostis japonica* (a common grass, growing on the bunds, drains and swampy areas) during the month of October, 1969, near the paddy fields of the Research Farm at Dholi (Bihar). About 20—30 plants were infected.

### Description

*Drechslera bhawani* Om PRAKASH & MISRA spec. nov. — Fig. 1

Conidiophora per stomata in fasciculis duorum usque ad quinque orta, fusca, recta, raro ramosa, basi bulbosa, apice inflato, hamato, geniculata,  $108-200 \times 4.6-6.2 \mu\text{m}$ , multiseptata, septis plerumque ab spatio  $15.4-21.8 \mu\text{m}$  separatis, sporam primam ad punctum  $77-123 \mu\text{m}$  supra basim, succedentes ad apices geniculorum validorum producentia, punctis collegationis a cicatricibus rotundis insignibus. Conidia aurea-brunnea vel atrofulginea, cylindrica, fusiformes, nonnumquam orbicularia, recta, longioria curvula, cellula basali pallidiore, septis fuscioribus, hilo in figuram intruso,  $28-54 \times 12-13 \mu\text{m}$ , pluria 5-septata. Ad culmos *Eragrostidis japonicae*, India (IMI 149189).

Spots appear as yellowish brown specks, which later enlarge to form elliptical lesions and turn dark reddish in colour, when aged the centre becomes light reddish with yellowish margin. The spots measure 2.5—10.5 mm in length, 0.5—2.5 mm in breadth. On coalescence, large irregular necrotic lesions on the leaf blade (occasionally on leaf sheath) are formed. In severe cases extensive premature defoliation is caused, starting at the tip of the leaves and progressing downwards.

Conidiophores arise in groups of 2—5 from stomatal opening, fuscous, staright, rarely branched, base bulbous, tip swollen and hooked, heavily geniculate, measuring  $108-200 \times 4-6 \mu\text{m}$ , 3—7

septate, the cross walls usually inserted at an interval of 15—21  $\mu\text{m}$  from each other, producing the first spore 77—123  $\mu\text{m}$  from the base and successive spores at apices of pronounced geniculations, the point of attachment marked by circular scars.

Conidia golden brown to fuliginous dark in colour, cylindrical to fusiform or occasionally orbicular, straight, long spores slightly curved, basal cell lighter and septa somewhat darker in colour, hilum intruding within the contour (Fig. 1). Mature conidia 28—54  $\times$  12—13  $\mu\text{m}$ , 3—6 septate (5 septa being common).

The fungus grew best at the initial pH 4.9 and a temperature of 22.4° C, with optimum growth at 26° C.

The fungus produced longest conidia with maximum septa on Glucose Peptone Agar (GPA) Medium followed by Barley leaf Extract Agar (BLE) Maize Meal Agar (MMA), Onion Agar (OA) and Potato Dextrose Agar (PDA).

Germination of Conidia: Germination of conidia bipolar, never from intermediate cells, germ tubes very thick and branched. The fungus grew best on BLE and MMA media followed by PDA, OA and GPA. The colony characters on different media were as follows:

Barley leaf Extract Agar: Surface smooth, colony circular, aerial mycelium dirty white to yellowish, zonation and sector not present, when seen against light, vivid yellow 2.5 y 8/2 in colour.

Potato Dextrose Agar: Surface smooth, colony circular, aerial mycelium light greenish to moderate olive, suppressed, cynemma and zonation present, when seen against light, moderate olive brown s. 5 y 4/4 in colour.

Maize Meal Agar: Surface rough, margin regular, cynemma present, aerial mycelium mouse grey, sectors and zonation not present, when seen against light, dark greenish yellow 10 y 6/7 (light) in colour.

Glucose Peptone Agar: Surface smooth, margin regular, aerial mycelium dark greenish grey, sectors, zonation and cynemma not present, when seen against light, moderate olive 10 y 4/3 in colour.

Onion Agar: Surface smooth, colony circular, aerial mycelium mouse grey, cynemma present, sectors and zonations not present, when seen against light, moderate olive green 2.5 GY 4/3 (lighter) in colour.

### Host Range

The fungus does infect *Eragrostis japonica*, *E. colonum* and *Avena sativa*.

### Discussion

The present species falls in the group *Eu-Helminthosporium* sensu NISIKADO (1929). It was compared with the species included by LUTTRELL (1954, 1955, 1957) in this group. It does not resemble any of these and is characterized by having two types of conidia. Besides the normal ones are others, broader in shape and cells slightly darker in colour, whose length is much shorter than the species included in *Eu-Helminthosporium*. In addition the germination is bipolar and starts never from the intermediate cells.

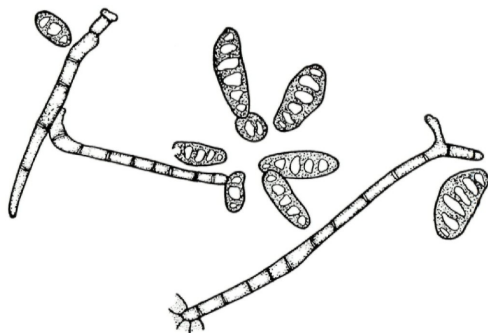


Fig. 1. Conidia and conidiophores of *Drechslera bhawani* Om PRAKASH & MISRA (type)

The species was also compared with the *Drechslera* state of *Cochliobolus sativum* (*H. sativum*, P. K. & B.), *D. setariae* (SAWADA) SUBRAM. & JAIN, *D. victoriae* MEEHANT & MURPHY (SUBRAM. & JAIN), with which it had slight resemblance but did not infect any of their natural hosts, viz., *Triticum aestivum*, *Hordeum vulgare*, *Setaria italica* and *Avena sativa*.

*H. rostratum* and *H. leucostylum* were described earlier by DRECHSLER, parasitizing *Eragrostis major*, but these were quite distinct from the new species recorded on *E. japonica*. Likewise *H. geniculatum* TRACY & EARLE and *H. eragrostidis* P. HENN., recorded from America and Congo on *Eragrostis rachitricha* and *Eragrostis* sp. respectively, differed from the present species in respect to conidial characters.

Thus the comparison justifies its description as a new species, dedicated to the late Bhawani MISRA who gave constant encouragement to the authors in this work. This species was first collected from Dholi on *Eragrostis japonica* (THUMB.) TRIN.

### Acknowledgements

The authors are grateful to Dr. M. B. ELLIS, Mycologist, Commonwealth Mycological Institute, Kew, England for her valuable assistance in the identification of the fungus, to Dr. P. ROGERS Prof. and Head, Department of Botany, University of Illinois, for his kindness in rendering the latin diagnosis and to the Government of Bihar for providing necessary facilities.

### Literature

- DRECHSLER, C. (1923). Some graminicolous species of *Helminthosporium*. — J. Agr. Res. **24**: 641—739.
- LUTTRELL, E. S. (1954). Approaches to the classification of *Helminthosporium* sp. — Plant Dis. Repr. Supply **228**: 111—113.
- (1955). A taxonomic revision of *H. sativum* and related sp. — Amer. J. Bot. **42**: 57—68.
- (1957). *H. nodulosum* and related sp. — Phytopathology, **47**: 540—48.
- MISRA, A. P. (1973). *Helminthosporium* species occurring on cereals and other Gramineae. — The Catholic Press, Ranchi (India), p. 288.
- NISIKADO, Y. (1929). Studies on the *Helminthosporium* diseases of Gramineae in Japan. — Ber. Chara Inst. Landw. Forsch. IV: 111—126.

# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Sydowia](#)

Jahr/Year: 1980

Band/Volume: [33](#)

Autor(en)/Author(s): Prakash Om., Mishra A. P.

Artikel/Article: [A new species of Drechslera. 242-245](#)