

## NATURAL INCIDENCE OF GRAIN SMUT IN SAWA

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*Sawa* (*Echinochloa frumentacea* Link) is a food crop of the tribal and hilly regions. Grain smut caused by *Ustilago paradoxa* Syd and Butler is one of the common diseases of *sawa*. Being a low input crop, there is no alternative but to identify and develop resistant varieties. Sharma<sup>1</sup> and Sharma and Deshkar<sup>2</sup> scored less than 20 lines for grain smut. One hundred and eighty seven accessions of *sawa* assembled at Millets Coordinating Unit, Pune have therefore, been, evaluated for various characters during *kharif*, 1980. The plot consisted of one row of 6 m with 60 plants. The rows were spaced at 45 cm. Initially, the earheads in all the accessions were scored for per cent incidence of grain smut. The grain smut intensity was calculated as the average incidence, that is total per cent incidence/number of earheads.

TABLE 1.

### Grain smut and yield in *sawa* germplasm

Smut intensity (%)	Lines (No.)	Mean intensity (%)	Mean grain yield (g/plot)
Nil	121	0.00	337
0.01- 1.00	28	0.63	438
1.01- 5.00	27	3.16	505
5.01-10.00	4	6.98	441
10.01-25.00	2	18.95	402
25.01-50.00	3	45.70	470
50.01-75.00	2	63.45	434
SEM		25.09	53.00

Natural intensity of grain smut ranged from 0-75% at maturity (table 1). Most of the lines were free from grain smut. A large number of them were moderately resistant with less than 4% disease intensity. Exceptional lines were highly susceptible. Lines with low and high intensity of grain smut were poor yielders compared to lines with moderate disease intensity. It, therefore, appears that a compromise should be made between disease susceptibility and grain yield to evolve high yielding and moderately resistant *sawa* varieties.

1. Sharma, B. B., *Proc. Natl. Acad. Sci., India*, 1964, B33, 618.
2. Sharma, B. L. and Deshkar, M. V., *J. N. K. V. V. Res. J.*, 1973, 7, 108.

## TWO NEW SPECIES OF PHYLLOSTICTA FROM INDIA

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In this paper two new species of *Phyllosticta* collected from ornamental plants, Botanical garden, Utkal University, during rainy and winter season are described.

### 1. *Phyllosticta dieffenbachiae* sp. nov.

Leaf spots amphigenous, irregular, pale yellow with dark yellowish brown margin, measuring 25-60 mm in length and 20-60 mm in width. Pycnidia amphigenous, single or in groups (3 or 4 together), scattered, somewhat depressed, globose, 90-240  $\mu$ m in diam., flat with a single circular ostiole of 10-20  $\mu$ m in diam. Wall 1-4 cells (15-20  $\mu$ m) thick, composed of partly thick walled and partly thin-walled brownish cells, darker and thicker around the pore, thin and hyaline towards the conidiogenous region. Conidiogenous cells cylindrical, 8-12  $\times$  2-2.5  $\mu$ m. Pycnidiospores one-celled, ovoidal or globose with a truncate base when young, broadly rounded apically, 8-14  $\times$  5-8  $\mu$ m, surrounded by a thick slime layer, containing greenish granules with short to long appendage (figure 1).

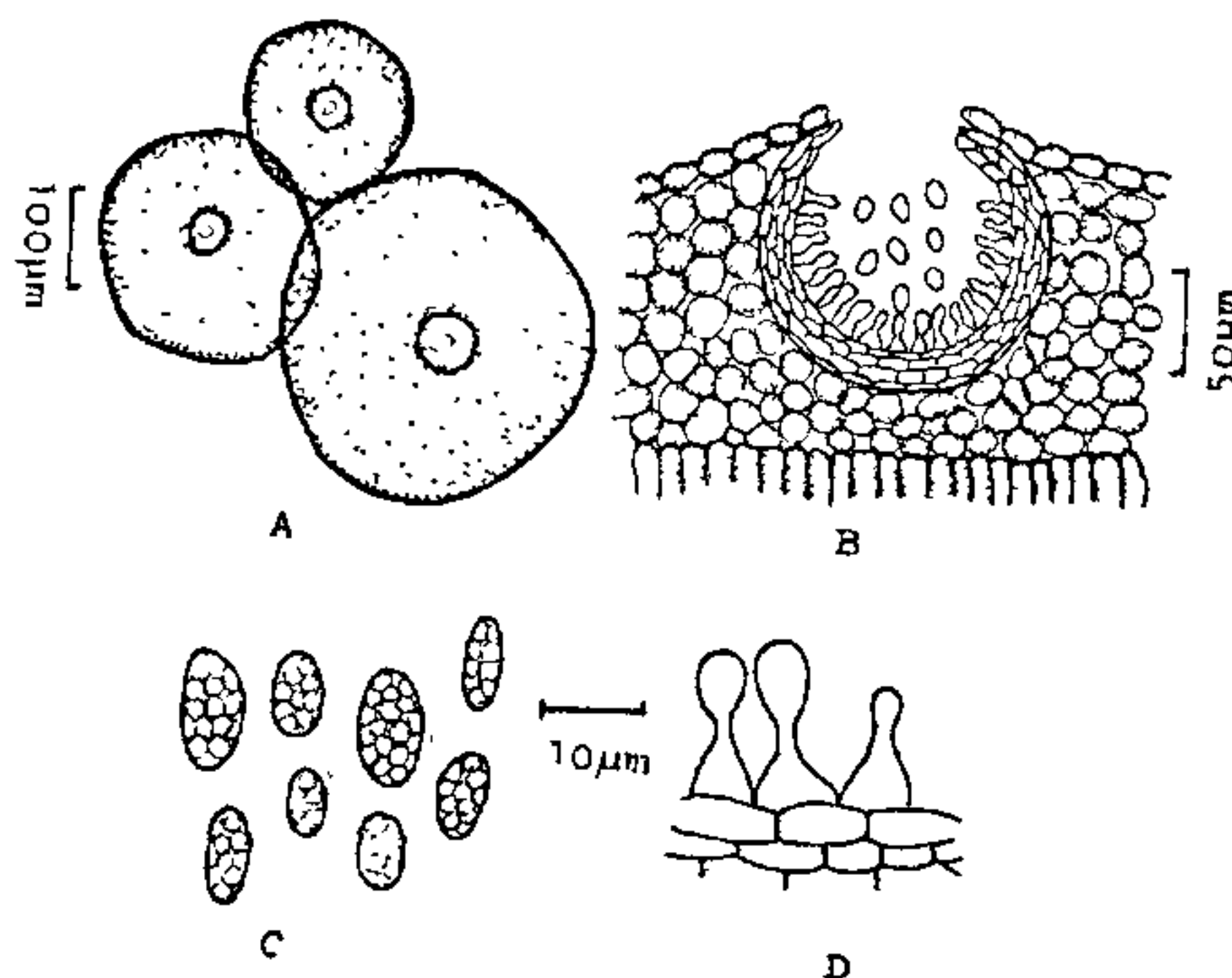


Figure 1. *Phyllosticta dieffenbachiae*. A. Habit sketch B. V.S. through pycnidia C. Pycnidiospores D. Conidiogenous cells