



Figure 1. A vegetative cell of *Chara zeylanica* showing two very prominently stained nucleoli.

ing staining schedule gave excellent staining of the nucleolus. Young growing vegetative apices of *Chara* sp. were fixed in 1:1 mixture of 10% formol and 1% hydroquinone solution for 2 hr at room temperature, then washed with distilled water and immersed in 2% aq. solution of  $\text{AgNO}_3$  for 18–20 hr at 70°C. The material was again washed in distilled water and reduced in the same fixative as described above for 2 hr. Final squashing was done in 50% acetic acid, sealed and observed.

Following this technique in four sp. of *Chara* viz. *C. zeylanica*, *C. globularis*, *C. braunii*, and *C. fibrosa*, excellent staining of the nucleolus was achieved (figure 1). In this staining procedure the nucleoli were stained dark brown, the nucleus bright yellow while the cytoplasm took pale yellow colouration. It is thus evident that  $\text{AgNO}_3$  method could successfully be employed to stain nucleolus in vegetative cells of *Chara*, but the usual incubation time in  $\text{AgNO}_3$  (10–15 hr) must be enhanced to at least 18–20 hr, otherwise the staining would be unsatisfactory.

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#### PATTERN OF SPORULATION AS POSSIBLE INDEX OF CULTIVAR REACTION TO *HELMINTHOSPORIUM TURCICUM* INCITANT OF LEAF BLIGHT OF MAIZE

S. SHANKERLINGAM and  
K. A. BALASUBRAMANIAN\*

Maize Research Station, Amberpet,  
Hyderabad 500013, India.

\* Department of Plant Pathology, College of Agriculture,  
A. P. Agricultural University, Rajendranagar,  
Hyderabad 500030, India.

WHILE projecting the capacity of maize leaf extract to support significant spore production in *Helminthosporium turcicum* incitant of leaf blight the authors<sup>1</sup> suggested that this character could be used to index cultivar reaction to this pathogen. Accordingly an experiment was designed and the results obtained are presented here.

Five maize cultivars included two blight resistant lines (Ade C and PTR) and three susceptible lines (CM 600, Warangal local and CM 202). The five isolates of the fungus included three isolated from Hyderabad (Hyd. 1 and Hyd. 2 obtained from maize and an isolate purified from blighted sorghum leaves) one isolate from Mandya in Karnataka and one isolate from Sikkim.

The isolates of the fungus were grown on the media containing 20% extracts of 5th and 6th leaves cut from 40 days old maize cultivars. The media were solidified by using 2% agar agar. The isolates were inoculated on the media in petridishes from six days old cultures on potato dextrose agar. The inoculated petridishes were incubated at two temperatures (12°C to 28°C) for fourteen days. Each treatment was replicated 3 times. Sporulation was estimated with a haemocytometer. The data are analysed following a split plot design and are presented in table 1.

The results clearly show that the extracts from resistant cultivars significantly suppressed and extracts from susceptible cultivars supported significantly higher sporulation. The influence of resistant cultivars among themselves was not significantly different. Among the susceptible cultivars Warangal Local supported the maximum sporulation followed by CM 202 and CM 600.

**Table 1** Pattern of sporulation of different isolates of *Helminthosporium turcicum* of maize (on the leaf extracts of different cultivars)

Medium containing extracts of	Number of spores ( $\times 10^4$ spores/ml) of <i>H. turcicum</i> isolates					Mean
	Hyd.-2	Hyd.-1	Mandya	Sikkim	Sorghum	
Ade C	5.75	7.15	3.83	0.48	14.96	6.634 <sup>a</sup>
PTR	0.74	2.26	4.98	0.24	17.58	5.16 <sup>a</sup>
CM 600	49.8	39.5	72.5	1.24	105.58	53.74 <sup>b</sup>
Warangal local	59.83	63.0	13.42	7.66	206.16	70.01 <sup>c</sup>
CM 202	16.33	45.25	10.66	1.75	237.5	62.298 <sup>d</sup>
Mean	26.49 <sup>a</sup>	31.432 <sup>b</sup>	21.078 <sup>c</sup>	2.274 <sup>d</sup>	116.65 <sup>e</sup>	

S.E. medium 0.9027

S.E. isolates 0.7004

S.E. Medium  $\times$  isolates 1.5661

C.D. medium at 1% = 3.02

C.D. isolates at 1% = 1.89

C.D. Interaction at 5% = 3.165

The sporulation was the highest in the isolate from sorghum which is in the border line of virulence and it was least in the isolate from Sikkim which was found to be the most aggressive among the isolates tested. The interaction of cultivars and isolate also confirmed the above mentioned trend<sup>2</sup>.

The results suggest that the sporulation of *H. turcicum* in maize leaf extract can be used as a good supplementary tool to screen germplasm collection of maize for their reaction to the leaf blight pathogen.

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## TWO NEW *FUSARIUM* DISEASES IN KARBI ANGLONG, ASSAM, INDIA

A. K. ROY

Regional Agricultural Research Station, Assam Agricultural University, Diphu 782460, India.

THIS note describes the occurrence of two plant diseases caused by *Fusarium* spp. (hitherto unrecorded in India<sup>1</sup>) from Diphu, Karbi Anglong. Blossom blight of tube rose (*Polianthes tuberosa* L.) caused by *F. equiseti* (Corda) Sacc. and yellowing of water melon (*Citrullus lanatus* (Thunb.) Mansf. (= *C. vulgaris* Schrad.) caused by *F. solani* (Mart.) Sacc. are fairly

common. The former disease has not been reported anywhere in the world<sup>2</sup>. Cultures of the fungi have been deposited in the Commonwealth Mycological Institute, Kew (No. IMI 281891 and IMI 269675 respectively).

### Blossom blight of tube rose

The disease usually appears from October to December. Symptom develops as light brownish (Gray Orange Group 165B of the Royal Horticultural Society Colour Chart) lesions on petals; soon these darken (165A) and the tissues dry up blighting the blossom (figure 1a) which ultimately drops off. Infection may also start on stalk of the flower when the stalk becomes very thin and cannot support the flower upright—the flower eventually hangs downward (figure 1b). Sometimes in extremely humid weather, a small group of flowers at the tip of the inflorescence become brown *en masse* on which fructification of the fungus develops as light pinkish growth discernible with naked eye.

Colony on PDA fluffy, white with pinkish tinge (turning to Gray Orange Group 164D), stroma darker (164A); slight pigmentation in medium. Both conidial and mycelial chlamydospores were found. Inoculation of healthy flowers by spraying spore or mycelial or spore-mycelial suspension produced symptom after two days (inoculated flowers covered with polythene bag).

### Yellowing of water melon

The disease was first noticed from April to June 1980 on two exotic cvs. of water melon—'Sugar Baby' and 'Golden Midget'—and since then is being ob-