

remained lower than that required for pollen dehiscence during day time, artificial means had to be adopted to deal with these problems.

The lantern method of crossing was modified by covering the entire lantern with alkathene. It raised the temperature and retained humidity in open field conditions. The temperature inside the cage ranged from 10° C to 18° C. Selfing was done in the first week of January, 1977. Matured tassels were harvested in the first week of February, 1977.

The fluff (1 g.) was sown in wooden boxes having mixture of well sieved sand, soil and the farm yard manure in the ratio of 1 : 1 : 1 and kept in glass house for germination under controlled conditions. Ten seedlings germinated in two boxes after 8 days. Rao¹ *et al* also recorded results of similar nature at Alexandria where the temperature varied from 19° C to 10° C. Ten g. of the fluff was sown in seedbed and the optimum temperature and humidity was maintained by covering the beds with hessian cloth and alkathene sheets. One hundred and twenty seedlings were obtained out of which 88 survived after transplanting in the field.

Seed setting in sugarcane under sub-tropical conditions at Shahjahanpur (Uttar Pradesh) hitherto considered to be not feasible, has been made possible in some varieties of sugarcane under study during 1976-77. This achievement undoubtedly heralds the commencement of a new era in sugarcane breeding programme of Uttar Pradesh.

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GENE GROUPS FOR TOTAL RESISTANCE TO WHEAT LEAF RUST IN INDIA

IN India the most prevalent wheat leaf rust (*Puccinia recondita* f. sp. *tritici*) races, that are capable of damaging the present-day high yielding cultivars, are 12, 77, 104, 162 and biotype 162 A (Swaminathan²). These races are found to be virulent on 15 to 19 *Lr* genes of the 22 genes tested on near isogenic background (Reddy and Rao¹).

Seven days old seedlings of *Lr* isogenic lines were inoculated with all the Indian leaf rust races and reactions were recorded after a week. Reactions: 0, ; 1 and 2 were considered as resistant while 3 and 4 were susceptible. Reactions of nine *Lr* genes to prevalent races are presented in Table I. From the table it is seen that seven gene groups namely, (1) *Lr* 9, (2) *Lr* 19,

(3) *Lr* 10 + *Lr* 15, (4) *Lr* 1 + *Lr* 10 + *Lr* 16, (5) *Lr* 1 + *Lr* 10 + *Lr* 17, (6) *Lr* 3ka + *Lr* 10 + *Lr* 17 and (7) *Lr* 3ka + *Lr* 10 + *Lr* 20 can confer total resistance to these races. Fortunately, these nine genes can be identified by the same prevalent races.

TABLE I
Reactions of nine *Lr* genes to prevalent races of India

Race	<i>Lr</i> gene											
	9	19	15	1	20	3ka	17	10	16			
12	0	;	;	1	0	;	1	4	1	4	4	
77	0	:	;	3	3	4	34	4	;	1	23	
104	0	;	;	1	3	;	1	4	;	1	23	2
162	;	;	;	1	0	;	1	;	4	4	4	
162A	0	1	1	0	4	;	4	3	4			

In India, the closed season is in operation for Central Plains region, where the major wheat crop of the country is grown. The fresh inoculum of leaf rust comes to this region every year from the two foci of infection, viz., one in the north Himalayan region and the other in the south Nilagiri and Palani hill region. As seven *Lr* gene groups are available, deployment and rotation of these gene groups in different regions is suggested for control of this rust in India.

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A NEW MEGALODOCHIUM FROM INDIA

REHANA AND RIZWANA³ reported *Megalodochium elaedis* (Beeli) Deighton, from India. Herein, a new *Megalodochium*, viz. *M. indica* is being described, collected during the survey of microfungi of Hyderabad.

Megalodochium indica sp. nov.

Sporodochia epiphyllous, grey to golden yellow, extend over the lower surface of the leaf, 300–600 µm diam., 120–150 µm tall. Hyphae immersed, ramose, septate, hyaline to light yellow, olive green, upto 3 µm

broad. Conidiophores semi-macronematous, pale yellow, smooth, septate, branched, 6–12 μm long and 3–4.5 μm broad. Conidiogenous cells monoblastic, terminal, narrow. Conidia light olivaceous yellow to green, obclavate to pyriform, 1-celled, finely echinulate with longitudinal germ slit, 18–30 μm long, 16–24 μm broad.

The above described *Megalodothium* differs from *M. elaeis* (Deighton¹, M. B. Ellis²) in having conidia that are short, broad and echinulate and hence described as a new species *M. indica*.

On living leaves of *Maytenus emarginata* (Willd.) Ding Hou, leg. Rehana, Ibrahimpatnam, February 1978, MRL No. 1542.

Megalodothium indica sp. nov.

Sporodochia epiphylla, aereo-brunnea, erumpenti, 300–600 μm diam., 120–150 μm longa. Hyphae immersi, ramosae, septatae, laevibus, hyalina vel subhyalina usque 3 μm lati. Conidiophora semi-macronemata, subhyalina septata, laevia, ramosa, 6–12 μm longa et 3–4.5 μm broad. Cellulae conidiogenae integri, monoblasticae, terminaliter. Conidia solitaria, obclavata vel pyriformia, 0-septata, echinulata, pallide ochracea vel hyalina, 18–30 μm longa et 16–24 μm lata.

Typus lactus e foliis *Maytenus emarginata* (Willd.) Ding Hou, leg. Rehana, Ibrahimpatnam, Februarii, anni 1978, MRL Sub numero 1542.

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OCCURRENCE OF A NEW COLLAR ROT DISEASE OF NIGER (*GUIZOTIA ABYSSINICA* CASS.) IN INDIA

NIGER (*Guizotia abyssinica* Cass.) is one of the important oilseed crops normally grown in all types of soil. The seeds are mainly used for extraction of edible oil.

The authors observed that about 1% of the niger plants was wilted in June–July 1978 at

Botanical garden of Agricultural College, Dharwad. Close examination of the wilted plants showed that the collar portion of the plant was sunk and covered with white mycellial mat and a large number of sclerotial bodies around the collar portion. Heavily infected plants died within a week. Repeated isolation of the infected portion of the plant yielded the fungus *Corticium* sp.

The pathogenicity was proved by sowing 50 seeds which were artificially inoculated with 20 days old *Corticium* culture and the same quantity of the seeds were sown in sterilized soil as control. Out of 50 seeds, 40 germinated and remaining 10 seeds did not germinate. The fungus started infecting after the third day of seed germination and all the 40 seedlings were infected within a week causing post-emergence death. In the case of the control, 48 seeds germinated and there was no infection of the fungus.

The characteristic features of the fungus are mycelium superficial on the host, sclerotia chocolate brown in colour and shape is ellipsoidal or subrotundum. The size of sclerotial bodies varied from 0.5 to 1.5 mm. Based on these characters the fungus was identified as *Corticium rolfsii* Curzi. This is a new disease on niger in India.

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PHYLLOSHERE STUDY OF WHEAT VARIETIES GROWN IN U.P.

CLARK AND PAUL², Prasad and Edward⁴ have reported differences in phyllosphere microbial population depending upon plant species. However, no reports are available on the effect of crop varieties on phyllosphere microbial population. Wheat varieties are noted for considerable differences in their leaf characters. In view of this, the study of *Azotobacter* and the variation of the total bacterial population in the phyllosphere of wheat is taken up.

Composite leaf samples from the healthy plants of wheat varieties K-68, K-65, Kalyan Sona and Sonalika were collected at seedling, flowering and maturity stages from the research plot of Agronomy Department, Allahabad Agricultural Institute, during rabi season in 1976–77. *Azotobacter* and total bacteria in phyllosphere were enumerated on Base medium 77 (Allen and Allen¹) and Thornton's agar medium (Allen and Allen¹) respectively, according to the