FUSARIUM ROT OF TAROI [*LUFFA CYLINDRICA* (LINN.) M. ROEM]

DISEASED fruits of Taroi [*Luffa cylindrica* (Linn.) M. Roem] were obtained from the local fruit market, during July-October 1960. The disease was characterised by slightly sunken rotted areas (3-4 inches in length). It invariably appeared towards the stalk end, and the lesions were tan to brownish- black in colour. Isolations from the diseased fruit consistently yielded a species of *Fusarium*. This was sent to Commonwealth Mycological Institute, Kew, where it was identified as *Fusarium semitectum*[1] Berk *et* Rav. No species of *Fusarium* has ever been reported to be associated with any disease of 'Taroi', and therefore, this is the first record from India or elsewhere.

This note includes a description of the disease under natural and controlled environmental conditions, the host range of the organism and its general morphology.

The first symptom of the disease on fruits of 'Taroi' is a light brown to tan lesion occurring at the stalk end (Fig. 1), where the injury is

FIG. 1

invariably obvious. This affords a convenient point of entry. Lesions typically radiate from the point of infection at the stalk end. The invasion of the new tissue often continues, until the entire fruit is discoloured. Tissue fragments from the diseased fruits collected from the local market yielded isolates of *F. semitectum*, which was isolated from 56 out of 68 tissue plantings. The isolates were inoculated into healthy, uninjured, green 'Taroi' fruits which had been previously sterilized. Granger and Horne's[2] method was used for this purpose. The inoculated fruits were kept in moist chambers at a controlled temperature (25° C. ± 1) and were observed daily. Controls were simultaneously arranged in every case. Every inoculated fruit showed the characteristic symptoms after 3-5 days, but the controls remained healthy. Tissue isolations were made from each diseased fruit and only *Fusarium semitectum* was recovered.

Two types of bacteria were also obtained from the tissue fragments (a white-pigmented and a yellow-pigmented). Their frequency was much less and they were observed in 15 cases only. Artificial inoculations were made by them also, but none of them were parasitic on "Taroi" fruits. Wherever these bacteria were inoculated into sterilized green "Taroi" fruits in different combinations with *Fusarium semitectum*, they developed the symptoms similar to those induced by the fungus alone. The only difference was that the rotted areas were watery and had dark brown to black colour. It appears that the bacteria caused the watery condition on account of the saprophytic growth on tissues killed by *Fusarium semitectum*.

Extensive cross-inoculations were carried out and it was observed that the organism had a wide range including various members of the family Cucurbitaceæ and some Solanaceæ, *viz.*, *Lagenaria vulgaris, Luffa acutanglia, Cucumis melo, Citrullus vulgaris, Citrullus colocynthis, Cucurbita pepo, Solanum tuberosum* and *Solanum melongena*. The organism failed to infect *Trichosanthes dioica*. The hosts on which positive results have been obtained are new suscepts.

Morphology of the fungus.—Hyphæ thin, white, septate, 1·7–2·0 μ wide, chlamydospores intercalary, in chain (2·0 × 2·0) μ. Sporodochia absent, macroconidia spindle or sickle-shaped, very variable in size, may be one to six septate; one septate 7–20 × 2–4 μ; two septate 15–40 × 3–5·5 μ; three septate 23–50 × 3·6 μ; four septate 25–58 × 3·6–7 μ; five septate 28 62 × 3·6–7·5 μ; six septate 36–72 × 4–7·5 μ; microconidia non-septate 4–13 × 1·6 3·5 μ. Four and five septate macroconidia were most commonly observed.

A culture of the fungus has been deposited in C.M.I., Kew, as No. 100608 and in the Botany Department, University of Allahabad.

We are grateful to Dr. Booth of C.M.I., Kew, for identifying the fungus, and to the Council of Scientific and Industrial Research for the award of a Junior Research Fellowship to one of us (R. K. K.).

Department of Botany, R. K. KAKKAR.
The University, R. N. TANDON.
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1. Gilman, J. C., *A Manual of Soil Fungi*, p. 382.
2. Granger, K. and Horne, A. S., "A method of inoculating the Apples.," *Ann. Bot.*, 1924, **38**, 212.

A NOTE ON THE EFFECT OF STAM F-34, ON *KAVADA* (*PANICUM CRUSGALLI*)

Kavada (*Panicum crusgalli*) is one of the important monocot weeds which is found growing in abundance in rice fields of Kuttanad. These plants flower earlier than rice and shed the seeds when half ripe. The seeds remain dormant in the soil although the fields are under 2′ to 10′ of water which may be either saline or fresh during the off-season. These germinate along with rice which is sown after dewatering the field in October-November and this weed grows vigorously and smothers the rice crop. Due to its close resemblance to rice seedlings it is very difficult to identify and eradicate *Kavada* completely. A chemical that would kill *Kavada* without affecting rice would, therefore, be of practical utility to the farmers of this region.

3, 4-dichloropropionanilide (DPA) is a recently introduced chemical to control monocot weeds in rice fields. It is reported to be selective and does not affect rice in any way. A preliminary trial to study the effect of DPA (Stam F-34 kindly supplied by Messrs. Indofil Chemicals Ltd., Bombay) on *Kavada* and rice was undertaken at the Regional Rice Research Station, Monkompu. The details of the trial are given below.

Since attempts to germinate under laboratory conditions the *Kavada* seeds collected in March 1963, were not successful, seedlings at two-leaf stage were collected from a nearby raised iand and planted in cement pots along with equal number of Ptb 10 rice seedlings of the same age. After one month when these produced 4 to 5 leaves Stam F-34 at the rate of 0·55 ml. in 5·5 ml. of water per pot (area 1 sq. ft.) was sprayed on them. The leaves of *Kavada* became flaccid within an hour after spraying and thereafter the seedlings drooped. All the *Kavada* seedlings dried completely within four days whereas the rice seedlings did not exhibit any symptom of injurious effect, excepting some small chlorotic and burnt patches here and there on the leaves (Fig. 1). This did not

FIG. 1

affect the vigour of the rice seedlings. Details of number of seedlings before and after spraying are given in Table I.

TABLE I

Pot No.	Number of seedlings planted		Number of plants before spraying		Number of plants 4 days after spraying	
	a	*b*	*a*	*b*	*a*	*b*
1	10	10	8	5	0	5
2	10	10	9	8	0	8
3	10	10	8	6	0	6
4	10	10	7	8	0	8
5	10	10	10	4	0	4

a—*Kavada*; *b*—*Rice*.

It would appear that Stam F-34 is effective in controlling *Kavada* in rice field without producing any injurious effect on rice. The concentration used in this trial (about 18 lb. of active ingredient per acre) is very much higher than the recommended dose. It is particularly interesting to note that this chemical even at this higher concentration did not produce any drastic injurious effect on rice. Detailed experiments to find out the optimum quantity and time of spraying to control monocot weeds especially