IDENTIFICATION OF THE SPECIES OF FUSARIUM CAUSING WILT IN PASSION VINES IN QUEENSLAND.

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SUMMARY.

Cross-inoculation studies with various forms of Fusarium oxysporum **commonly found in Queensland were undertaken.**

The evidence indicates that Fusarium oxysporum **forma** passiflora **n.f. is the causal agent of wilt in the passion vine in Queensland.**

INTRODUCTION.

A wilt disease of the passion vine (*Passiflora edulis* Sims), in Queensland caused by a species of *Fusarium* was described by McKnight (1951) and the susceptibility of various species of *Passiflora* to this organism was determined.

A culture of the *Fusarium* was forwarded by courtesy of the Commonwealth Mycological Institute to Dr. W. L. Gordon, Laboratory of Plant Pathology, Winnipeg, Manitoba, who identified the organism as *Fusarium oxysporum* Schlecht. em Snyder and Hansen. He suggested that as the organism had proven pathogenic to mature passion vine it be referred to as *F. oxysporum* Schlecht. em Snyder and Hansen forma *passiflorae* n.f.

CROSS-INOCULATIONS.

Before release of this name cross-inoculation studies with other forms of *F. oxysporum* commonly found in Queensland were undertaken.

The following isolates were used:—

(1) *Fusarium* sp. obtained from wilted passion vines.

(2) *F. oxysporum* f. *lycopersici* (Sacc.) Snyder and Hansen obtained from wilted tomato plants.

(3) *F. oxysporum* f. *niveum* (E.F.S.) Snyder and Hansen obtained from wilted watermelon plants.

(4) *F. oxysporum* f. *pisi* (Lindf.) Snyder and Hansen obtained from wilted pea plants.

Cultures of these fungi were grown on potato-dextrose-agar for two weeks. Seedlings of tomato, watermelon, pea, and *Passiflora edulis* were inoculated with each of these cultures, using the water-fungus technique referred to by McKnight (1951). The passion fruit seedlings used were six weeks old, while those of the other species were three weeks old.

The results obtained are summarised in Table 1.

Table 1.

CROSS-INOCULATION OF VARIOUS PLANT SPECIES WITH FUSARIA.

Treatment.	Plant Species Inoculated.	Number of Plants.	After 15 days.	
			Healthy.	Wilting.
Uninoculated	*P. edulis*	4	4	0
	Tomato	5	5	0
	Pea	3	3	0
	Watermelon..	3	3	0
Fusarium sp. from passion vine. 10480	*P. edulis*	4	0	4
	Tomato	5	5	0
	Pea	4	4	0
	Watermelon..	5	5	0
F. oxysporum f. *lycopersici* 10529	*P. edulis*	4	4	0
	Tomato	5	0	5
	Pea	5	5	0
	Watermelon..	5	5	0
F. oxysporum f. *pisi* 10463 ..	*P. edulis*	4	4	0
	Tomato	5	5	0
	Pea	6	0	6
	Watermelon..	4	4	0
F. oxysporum f. *niveum* 10620	*P. edulis*	5	5	0
	Tomato	5	5	0
	Pea	4	4	0
	Watermelon..	4	0	4

A second series carried out on similar lines gave the same definite results.

McKnight had previously compared the tomato and passion vine Fusaria and obtained the same reactions as those indicated above.

The diseased plants of tomato, pea and watermelon showed typical symptoms of fusarium wilt. The leaves turned yellow and the plants wilted. Brown vascular discolouration was apparent in each case. The diseased passion fruit seedlings showed the typical seedling symptoms of fusarium wilt described by McKnight (1951).

CULTURAL CHARACTERISTICS.

In culture all organisms appeared somewhat similar. However, the substrate of the isolate of *F. oxysporum* f. *niveum* was of a much deeper red colouration than any of the other organisms. A potato-dextrose-agar culture of the *Fusarium* obtained from passion fruit has a distinctive fruity odour not noticeable with the other forms.

CONCLUSION.

These results indicate that the various isolates of *Fusarium* causing wilt of passion vine, pea, watermelon and tomato in Queensland are distinct forms.

On this evidence the name suggested by Dr. Gordon, *Fusarium oxysporum* Schlecht. em Snyder and Hansen forma *passiflorae* n.f., should be accepted as the name for the causal agent of wilt in the passion vine.

REFERENCES.

McKNIGHT, T. 1951. A wilt disease of the passion vine (*Passiflora edulis*) caused by a species of *Fusarium*. Qd J. Agric. Sci. 8: 1-4.

SNYDER, W. C. and HANSEN, H. N. 1940. The species concept in *Fusarium*. Amer. J. Bot. 27: 64-7.

(Received for publication April 27, 1954.)

A. H. TUCKER, Government Printer, Brisbane.