

Variation in the isolates of *Fusarium* spp. from patchouli in different locations

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ABSTRACT

Studies were conducted on the different group based on cultural and morphological characters, pathogenicity, pigmentation and sporulation. Observations in respect of virulence test of five isolates of *Fusarium oxysporum* against patchouli plant by pot culture and water culture technique were made and results indicated that isolate (I) was observed to be most virulent in pot culture and water culture technique.

Key words : *Pogostemon patchouli*, *Fusarium oxysporum*, Virulence.

Patchouli (*Pogostemon patchouli* Pellet Syn. *P. cablin* Benth.) belongs to the family Lamiaceae is the source of Patchouli oil. It is reported to be affected by many pathogens. Of these, wilt caused by *Fusarium oxysporum*.

Schlecht is a wide spread soil borne disease and is reported from many part of India. Studies were undertaken to find out variations in pathogenicity, cultural and morphological characters of isolates of *Fusarium oxysporum* from patchouli in different locations.

MATERIALS AND METHODS

Wilted patchouli plants were collected from 5 different patchouli growing locations. Isolations from infected roots were made on Potato dextrose agar (PDA). The isolates of *Fusarium* sp. were identified (Booth, 1971) and categorized into different groups based on cultural and morphological characters,

Pathogenicity variation in growth of mycelium, pigmentation and sporulation among the isolates were recorded by growing on PDA, Czapeks agar and Richard agar media. Pathogenicity studies on patchouli plants were conducted by adopting a pot culture technique (Haware and Nene, 1982) by inoculating the fungal inoculum

maintained on sorghum grain medium. The pots were filled with sterile soil + inoculum of the pathogen. The inoculum of each isolate was mixed thoroughly with sterilized sand soil and F.Y.M. mixture and filled in each pot. The fungus was allowed to establish in soil mixture for 7 days. One month old healthy plants were transplanted in each pot. Pot as well as water culture techniques (Nene *et al.*, 1981) were adopted for identification of highly pathogenic isolates of *F. oxysporum* Schlecht. In this technique, flasks of 250 ml capacity containing 100 ml Richard broth were sterilized and were separately inoculated with 5 isolates of the pathogen and incubated at room temp. (27+1°C) for 15 days. Uninoculated flasks served as control.

RESULTS AND DISCUSSION

A total of five isolates categorized into different groups based on variation, cultural and morphological characters, pathogenicity, pigmentation and sporulation. Observations in respect of virulence test of 5 isolates of *Fusarium oxysporum* against patchouli plants by pot culture and water culture technique are given in Table 1. The results indicated a significant difference among the isolates in their ability to induce wilting.

In the pot culture technique isolate (I) was observed

Table 1: Difference in virulence of different isolates of *F.oxysporum* to cause wilting of patchouli plant

Isolate No.	No. of days required for wilting							
	Pot culture technique				Water culture technique			
	R ₁	R ₂	R ₃	Mean	R ₁	R ₂	R ₃	Mean
I ₁	10	10	10	10	1	1.25	1	1.08
I ₂	20	20	21	20.33	2	2	2.5	2.16
I ₃	18	18	18	18	1.5	1.5	1.75	1.58
I ₄	22	23	22	22.33	3	2.5	3	2.83
I ₅	18	18	18	18	1.75	1.5	1.75	1.66

S.E._± = 0.21

C.D. (P=0.05) = 0.66

S.E._± = 0.12

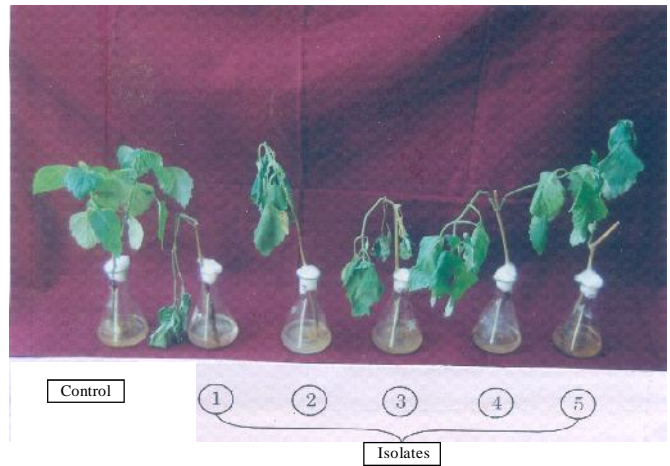
C.D. (P=0.05) = 0.37

C.D. (P=0.01) = 0.94

C.D. (P=0.01) = 0.55



A) By Pot Culture Technique



B) By Water Culture (culture filtrate) Technique

Plate: Differentiation of virulence of different isolates causing wilt

to be the most virulent as it showed wilting within 10 days. Isolate (I) was also observed to be found most virulent in water culture technique as it showed wilting within 1 day.

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Haware, M.P. and Nene, Y.L. (1982). Race of *Fusarium oxysporum* and S.P. ciceri. *Plant Disease*, **66** : 809-810.

Nene, Y.L., Haware, M.P. and Reddy, M.V. (1981). Chickpea diseases: Resistance screening technique. Information Bulletin No.10, Patancheru, A.P., India; International Crop Research Institute for the Semi-Arid Tropics.

REFERENCES

Booth, C. (1971). The genus *Fusarium* CMI Kew, England (U.K.), 131-134pp.