

Research Paper :

Studies on variability in the growth of twenty isolates of *Fusarium oxysporum* F. Sp. ciceri causing vascular wilt of chick pea on different solid media

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SUMMARY

Field survey was undertaken and 71 samples of chickpea wilted plants, were collected from 23 locations in different districts namely Bhopal, Raisen Rajgarh, Sagar, Sehore and Vidisha of Vaindhyan Plateau Zone of Madhya Preadesh. Out of 71 isolates, only 20 were found pathogenic to chickpea. These isolates were categorized into six different groups on the basis of growth pattern, colony diameter and number of micro and macro conidia. The physiological studies of the representative isolates of these 6 groups were made on seven solid media. All the media differed significantly from each other. The minimum mean growth (6.08cm) was recorded in group 5 of isolates Ri4, Ri5 and V2 and maximum (7.86cm) in group I consisting of B2, B3, Se6 and Se8. The maximum (6.28cm) on yeast extract agar. These isolates exhibited three types of growth pattern namely fluffy, partially submerged and submerged. The maximum number of micro conidia were produced on PDA (7.61million/ml) and minimum (2.60million/ml) on nutrient agar. Similarly, the maximum number of macro conidia were produced on PDA (2.50million/ml) and on nutrient agar.

Key words :

Management, Pea
mosaic virus,
Medicinal plants

Chickpea (*Ciceri aretinum* L.) is an important pulse crop of India and suffers with various diseases caused by fungi, bacteria and virus of which vascular wilt caused by *Fusarium oxysporum* f. Sp ciceri is much dangerous than other diseases (Singh and Dahiya, 1973). The incidence of the disease varies from 10-100 per cent depending on the locality. In Madhya Pradesh, its incidence has been reported from 0-60 per cent (Gupta *et al.*, 1983). In order to find suitable lines resistant to this disease, it is necessary to study the variability of the pathogen. The isolates of the chickpea wilt pathogen obtained from various locations of Madhya Pradesh, were grouped into six groups on the basis of morphological, cultural characters (Gupta *et al.*, 1986) and physiological basis (Kushwaha *et al.*, 1974). The variability in the growth of twenty isolates on seven solid media is reported in this paper.

MATERIALS AND METHODS

All the pathogenic isolates were grown on seven solid media namely Potato dextrose agar, Rice extract agar, Richards agar, Maize extract agar, Czapecks agar, Nutrient agar and Yeast extract agar. All the media were adjusted at pH 6.5 and auto claved at 15 lbs psi for 20 minutes. A quantity of 20 ml of the medium

was poured in each Petriplate and allowed to solidify. Five mm disc was cut through sterilized cork borer from the margin of seven days old culture of *F. oxysporum* f.sp. ciceri. One disc was placed in the centre of each plate and incubated at $28 \pm 1^{\circ}\text{C}$ for seven days. Three replication were maintained for each medium for each isolate on tenth day of inoculation, five mm disc of the fungus was cur randomly from each petriplate, suspended in 2ml of sterilized water and shaken well. This was examined under low power of microscope on haemocytometer and the number of micro and macro conidia per ml of suspension were calculated using following formula:

$$\text{Conidia/ml} = X \times 25000$$

X = Number of conidia/square of haemocytometer of 1/25 mm²

RESULTS AND DISCUSSION

Observations were recorded on the diameter of the colony. Growth pattern of each colony were recorded as fluffy, partially submerged and the numbers of micro and macro conidia/ml was recorded. It is evident from the data given in Table 1, that all the groups of isolates of *F. oxysporum* f. sp. ciceri differed significantly from each other in their growth

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