Research Paper :

Effect of different nitrogen sources on growth and sporulation of *Colletotrichum gloeosporioides* causing Anthracnose disease of Anthurium

H.V. DESHMUKH AND P.B.MEHETRE

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See end of the article for authors' affiliations

Correspondence to :
H.V. DESHMUKH
Department of Plant Pathology, K.K. Wagh College of Agriculture, Panchawati, NASHIK (M.S.) INDIA

SUMMARY

***Colletotrichum gloeosporioides* was found to cause anthracnose disease of Anthurium. Studies on different nitrogen sources revealed that *C. gloeosporioides* produced maximum vegetative growth on peptone followed by L- cystine. This was followed by urea, ammonium dihydrogen phosphate and methionine. Methionine and sodium nitrate supported profuse sporulation. Poor vegetative growth of the test fungus was recorded when the basal medium was separately supported with sodium nitrate and ammonium sulphate as nitrogen sources. Poor sporulation was recorded with ammonium sulphate, ammonium chloride and L-cystine.**

Key words : Colletotrichum, *gloeosporioides*, Sporulation, Nitrogen

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Anthurium (*Anthurium* spp.) is a tropical plant of great beauty and grown either for the showy cut flowers or for their unusually attractive foliage. It is very popular with flower arranger because of bold effect and lasting qualities of cut flowers. It contributes to the elegance and attractiveness which are the prerequisites for a quality.

Anthurium is a popular modern cut-flower having export potential. In Maharashtra, it is cultivated near urban cities like Mumbai and Pune as there is increasing demand for cut-flowers.

This wonder crop of 20th century is affected by a number of diseases incited by fungi, bacteria and viruses (Bhatt and Desai, 1989; Dilbar, 1992). It was observed that due to anthracnose disease, quality and quantity of the leaves and flowers are reduced, leading to economic losses. During the disease survey in October-November, 1995, *Colletotrichum gloeosporioides* was observed to cause the anthracnose disease of Anthurium at the Department of Horticulture, Collage of Agriculture, Dapoli. Looking to the destructive nature of the pathogen and importance of the disease, systematic investigation was carry out on the effect of nitrogen sources on the growth and sporulation of the pathogen.

MATERIALS AND METHODS

Richard's broth, a selected basal medium was prepared without potassium nitrate for each nitrogen source. Nitrogen present in ten grams of potassium nitrate in the basal medium was calculated and replaced with an equivalent amount of the nitrogen present in the various inorganic and organic nitrogen sources calculated on the basis of their molecular formula. Richards's broth of 100 ml quantity was separately prepared by replacing potassium nitrate by each source. Twenty five ml medium was distributed in each 100 ml. conical flask and replicated four times per treatment. One additional treatment was kept as control without adding any nitrogen source. These flasks after sterilization were inoculated with the test fungus and incubated at 27 ± 1^0C for 10 days.

RESULTS AND DISCUSSION

Of all the elements essential for growth of fungi, nitrogen plays an important role for the growth of fungi. Fungi differ in their ability to utilize different nitrogen sources for growth. In the present investigation, the fungus was grown on nine different nitrogen compounds. Bassal medium without nitrogen served as control. Data obtained on the effect of different nitrogen sources on vegetative growth and sporulation are presented in Table 1. From present investigation, it is revealed that the maximum growth of the fungus was recorded on peptone followed by L-cystine. This was followed by urea, ammonium dihydrogen

Table 1 : Effect of various nitrogen sources on growth and sporulation of *C. gloeosporiodes*

Sr. No.	Nitrogen source	Average dry weight of mycelium (mg)	Sporulation
1.	Ammonium nitrate	226.5	Moderate
2.	Sodium nitrate	204.5	Profuse
3.	Ammonium sulphate	195.5	Poor
4.	Ammonium chloride	244.5	Poor
5.	Ammonium dihydrogen phosphate	341.0	Moderate
6.	Urea	342.5	Moderate
7.	Peptone	666.2	Moderate
8.	DL-methionine	334.6	Profuse
9.	L-cystine	349.0	Poor
10.	Control	213.5	Poor
S.E. ±			37.14
C.D. (P=0.05)			107.79

phosphate and methionine. Poor vegetative growth was observed on ammonium chloride, ammonium nitrate, control (without nitrogen), sodium nitrate and ammonium sulphate. This indicated that peptone, L-cystine, methionine and sodium nitrate are good 'N'sources for growth and sporulation of *Colletotrichum gloeosporioides*.

The profuse sporulation was supported by methionine and sodium nitrate whereas ammonium nitrate, ammonium dihydrogen phosphate, urea and peptone supported moderate sporulation. Poor sporulation was observed on ammonium sulphate, ammonium chloride, L-cystine and control (without nitrogen). These results are in harmony wih the findings of Purkayastha and Sengupta (1975), Patil (1985) and Mehendale (1994).

Authors' affiliations:
P.B. MEHETRE, Department of Plant Pathology, K.K. Wagh College of Agriculture, Panchawati, NASHIK (M.S.) INDIA

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