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Phosphate Nutrition in Relation to Growth of *Cercospora traversiana* Causing CLS of Fenugreek (*Trigonella foenum-graecum L.*)

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Abstract: *Cercospora leaf spot (CLS) is a destructive and widespread disease of Fenugreek(Trigonellafoenum-graecum L.) Each one microorganism requires proper nutrition source for their growth. The present investigation deals with the effect of three nutritional phosphate sources on the growth of Cercospora traversianacauses Cercospora Leaf Spot(CLS) of Fenugreek. The phosphate sources like ammonium dihydrogen orthophosphate, potassium dihydrogen orthophosphate and sodium dihydrogen orthophosphate were used against the pathogen. In the results it was found that 0.1% concentration of ammonium dihydrogen orthophosphate and sodium dihydrogen orthophosphate reduced the growth while potassium dihydrogen orthophosphate stimulated the growth of Cercosporatraversiana.*

Keywords: *CLS, Cercospora traversiana* phosphate sources, Fenugreek

I. INTRODUCTION

Fenugreek (Trigonella foenum-graecum) is an annual legume crop and native of South Eastern Europe and West Asia, belongs to family Fabaceae which is often cultivated in regions of India. Fenugreek seed is used as a spice, is one of the main ingredients in curry powder and also has a long history of use as a medicinal herb, being used extensively in both Indian Ayurvedic and traditional Chinese medicine. Fenugreek leaves are one of the healthiest green leafy vegetable .Fenugreek is severely affected by the various fungal, bacterial and viral diseases. Leaf spot of fenugreek caused by Cercospora traversiana .Now a day's disease management is made necessary for high yield of vegetables. Each microorganism requires proper nutritional source for their growth. The earlier workers studied the growth of various plant pathogens in different food sources, the present study deals with the effect of different phosphate sources on the growth of Cercospora traversiana to know the nutrition requirement will help to control the growth of the pathogen.

II. MATERIALS AND METHODS

The infected material of fenugreek (Leaf spot) were collected from the different localities of Renapur area during the period of 2019 to 2020.The infected plant material were brought to the Botany laboratory and isolated the pathogen on Czapek Dox Agar(CDA) medium, the pathogen is identified with the help of standard mycological literature (Subramanian, 1971), pure culture was maintained at 23 ± 2^0Cin BOD incubator for further study. For the study three phosphates sources like ammonium dihydrogen orthophosphate, potassium dihydrogen orthophosphate and sodium dihydrogen orthophosphate were used at 0.1% in Czapek Dox Agar(CDA) medium, 4mm freshly growing 8days old pure culture of *Cercospora traversiana* grown on agar medium and incubated at*28* ±2^0CThe plates without source

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treated as control. After the 8days of incubation linear growth of mycelium was measured at different intervals for five days.

III. RESULTS AND DISCUSSION

For the present investigation three phosphate sources like ammonium dihydrogen orthophosphate, potassium dihydrogen orthophosphate and sodium dihydrogen orthophosphate were used. In the present study it was found that 0.1% concentration of ammonium dihydrogen orthophosphate, and sodium dihydrogen orthophosphate reduced the growth while as potassium dihydrogen orthophosphate stimulated the growth of *Cercosporatraversiana*(Table 1).The results obtained from the present investigation are agreed with Bhale (2002),Waghmare (2015), similarly other workers studied the effect of nutritional sources on the growth of different plant pathogens Patil (2009),Khilare and Rafi (2011),Ramteke (2011), (Naim and Sharoubeem (1963),Steinber (1999), Wadikar (2002),Sharma and MohinderKaur,(2014).

Table 1: Effect of Phosphates sources on the linear growth (mm)*Cercospora traversiana* causing Cercospora leaf spot of fenugreek on CDA medium.

Sr. no	Phosphate source	Days and radial growth of pathogen in mm				
		2	4	6	8	10
1.	Potassium dihydrogen orthophosphate	18.20	28.60	46.28	58.32	68.12
2.	Sodium dihydrogen orthophosphate	16.10	26.24	33.60	40.36	49.12
3.	Ammonium dihydrogen orthophosphate	15.40	23.26	29.13	36.42	39.24
4.	Control	19.36	27.10	31.28	41.22	49.26

IV. CONCLUSION

For the management of *Cercospora traversiana* causing Cercospora leaf spot of fenugreek, use of 0.1% concentration of Ammonium dihydrogen orthophosphate and Sodium dihydrogen orthophosphate is effective.

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