



EFFECT OF NUTRITIONAL SOURCES ON GROWTH OF *ALTERNARIA SOLANI* CAUSING EARLY BLIGHT OF TOMATO

Botany

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ABSTRACT

Each microorganism requires proper nutritional source for their growth. The present investigation deals with the effect of three phosphate sources on the growth of *Alternaria solani* causes the early blight of tomato (*Solanum lycopersicum L.*) belongs to family solanaceae. The nutritional source (phosphate sources) like ammonium dihydrogen orthophosphate, potassium dihydrogen orthophosphate and sodium dihydrogen orthophosphate were used against the pathogen. In the result 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 *Alternaria solani*

KEYWORDS

Alternaria solani, phosphate sources, *Solanum lycopersicum L*

INTRODUCTION:

Tomato (*Solanum lycopersicum L.*) is native to Western South America, belongs to family Solanaceae. It is one of the most common fruit vegetable cultivated worldwide (Sato et al. 2010). It is a rich source of vitamin B₁, B₃, B₆, C, E and K (Ball, 2006. Koren, 2007). Tomato (*Solanum lycopersicum L*) along with other fruit vegetables is considered to be a rich source of carbohydrates, sugars, dietary fibre, fat, proteins also with magnesium, manganese minerals (Weaver and Heaney, 2006). Tomato is severely affected by the various fungal, bacterial and viral diseases. The early blight of tomato caused by *Alternaria solani*. 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 *Alternaria solani* to know the nutrition requirement will help to control the growth of the pathogen.

MATERIALS AND METHODS:

The infected material of tomato (Leaf spot) were collected from the different localities of Renapur area during the period of 2014 to 2015. 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°C in 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 *Alternaria solani* grown on agar medium and incubated at 28 ± 2°C. The plates without source treated as control. After the 8days of incubation linear growth of mycelium was measured at different intervals for five days.

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 *Alternaria solani* (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), Steinberg (1999), Wadikar (2002), Sharma and Mohinder Kaur, (2014).

Table.1 Effect of Phosphates sources on the linear growth (mm) *Alternaria solani* causing early blight of tomato on CDA medium.

Sr. no	Phosphate source	Days and radial growth of pathogen in mm				
		2	4	6	8	10
1.	Potassium dihydrogen orthophosphate	18.48	27.64	46.32	62.10	72.12

2.	Sodium dihydrogen orthophosphate	16.30	22.70	33.44	42.56	50.22
3.	Ammonium dihydrogen orthophosphate	13.10	22.33	30.10	35.42	40.30
4.	Control	21.36	28.30	36.44	47.32	53.76

CONCLUSION:

For the management of *Alternaria solani* causing early blight of tomato, use of 0.1% concentration of Ammonium dihydrogen orthophosphate and Sodium dihydrogen orthophosphate is effective.

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