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In Vitro C Effect of Vitamins on Growth of Resistant and Sensitive Isolate of Alternaria Alternata Causal Agent of Fruit Rot of Pomegranate

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Abstract: ***The fruit rot of Pomegranate is caused by Alternaria alternata (Fr.) Keissler. During present investigation effect of Vitamins on growth Aa-21 resistant isolate and Aa-2 sensitive isolate of this pathogen was used. Niacin showed lowest growth of mycelium with poor sporulation in sensitive isolate whereas Ascorbic acid showed highest growth of mycelium and abundant sporulation in resistant isolate Aa-21 of Alternaria alternata.***

Keywords: Vitamins, Niacin, Ascorbic acid, resistant isolate, sensitive isolate, *Alternaria alternata*

1. Introduction

Fruit rot disease of pomegranate (*Punica granatum* L.) is caused by *Alternaria alternata.* Present investigation was undertaken to find out the effect of vitamins on growth of sensitive and resistant isolate of *Alternaria alternata.*

2. Materials and Methods

Effect of Vitamins on development of carbendazim resistance in *Alternaria alternata* was studied with Aa-21 resistant and Aa-2 sensitive isolate by mixing carbendazim (9%) different vitamins viz- Ascorbic acid, Niacin, Thiamine, Cobalmine. These vitamins were incorporated in Czapek Dox Agar (CDA) medium at (0. 1%) concentration to prepare plates. From pure culture of the pathogen, 8mm disc of fungal mycelium was taken from an actively growing colony placed on the agar surface The growth of fungus was measured at different intervals. The plates without mixture served as control. Radial growth of mycelium was measured every day till 12^{th} day of inoculation. The data were statistically analysed for Analysis of variance (ANOVA) following Panse and Sukhatme (1985).

3. Result and Discussion

Data presented in Table 1 and the Analysis of variance (ANOVA) given in the Table 2 clearly indicated statistically significant variation in linear growth of the fungus under the influence of various vitamins as well as the days of incubation. Rana and Sengupta (1976) reported increase in production of amino acids in the isolate of *Macrophomina phaseolina* resistant to Captan and Carbendazim. Synergistic effects of Carbendazim with agrochemicals has been earlier reported by Chander and Thind (1995), Gangawane and Kambl, (1993) , Gangawane and Datar,(1978).(Swain et al.,1959)

Table 1: Effect of vitamins on the radial growth (mm) of carbendazim resistant isolate of on *Alternaria alternata* Czapek Dox Agar medium.

Concentration of vitamins 0.1%	Days / Radial growth in mm						
		2	4	6	8	10	12
Ascorbic acid	Sensitive	15.66	30.33	49.66	59.66	65.66	70
	Resistant	16.66	31.66	51.66	61.66	67.33	75
Niacin	Sensitive	12.66	15.33	18.33	21.33	23.66	28.33
	Resistant	13.33	16.66	19.33	22.33	26.66	30
Thiamine	Sensitive	10	20.66	28.33	40	50	59.66
	Resistant	12.66	26.66	32.33	43.66	53	62.66
Cobalmine	Sensitive	14.66	43.66	40	48.66	54.66	60.66
	Resistant	15.66	38.66	46	50.66	58.66	64.33
Control	Sensitive	14.33	30.66	38.33	60.33	74.33	90
	Resistant	18.33	34.66	50.33	70.66	78.33	90

Table 2: Analysis of variance (ANOVA)

Between vitamins ' F	Sensitive	Resistant
Between days 'F'	2.62*	7.00
C. D. at P= 0.05	5.10*	9.10
P=0.01	12.53	15.10
	17.51	19.12

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