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RESEARCH NOTE

Survey and surveillance of early blight of tomato caused by *Alternaria solani* in Konkan region

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ABSTRACT

A roving survey of early blight of tomato disease were carried out during *Rabi* season, 2008-2009 at Thane, Raigad, Ratnagiri and Sindhudurg districts and per cent disease incidence was recorded ranged from 26.33 to 50.77 per cent .The mean incidence of early blight recorded was 40.97 per cent in Konkan region. The maximum per cent disease incidence was observed in Wada Tahsil in Thane district with 50.77 per cent and minimum per cent disease incidence in Goregaon Tahsil of Raigad districts with 26.33 per cent in Konkan.

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Tomato (*Lycopersicon esculentum* Mill.) is an important commercial vegetable crop grown widely throughout the world. Tomato is known for its outstanding nutritive values. It is a major source of vitamin A, B and excellent source of vitamin C. In Konkan region, tomato is mainly grown in Thane and Raigad districts in *Rabi* season after harvest of *Kharif* rice. The association of phytopathogenic micro-organisms with this crop is perhaps as old as civilization. Among these organisms, fungi hold a significant place and are important as the pathogens. These fungal pathogens incite various types of diseases on their host crops and cause heavy economic losses annually throughout the world. Tomato early blight disease caused by *Alternaria solani* become the most destructive disease in all over the world and yield losses up to 80 per cent (Chandravanshi *et al*., 1994). It was also noticed that the tomato cultivation in Konkan received a setback due to various disease of common occurrence such as bacterial wilt, leaf curl and early blight disease and root knot nematode fungal complex (Rajput and Wagh, 1995). In the present investigation an extensive survey in major tomato growing area of Konkan region was undertaken to find out the prevalence of diseases on tomato crop, pathogen associated with the disease and performance of different tomato cultivars against early blight on farmers field.

A roving survey was conducted in tomato growing areas during the *Rabi* season 2008-2009 in Konkan region to assess the per cent disease incidence of the early blight disease of tomato incited by *Alternaria solani*. Tomato growing pockets were identified from the records available at the office of Sub-Divisional Agriculture Officer, of each district in Konkan region. Survey was conducted during *Rabi* 2008-09 around in konkan region of four districts *viz.*, Thane, Raigad, Ratanagiri, and Sindhudurg. In each field visited plants were randomly selected and by selecting ten leaves randomly in each plant, the incidence of the disease was assessed by using 0-9 scale (Datar and Mayee, 1986) and per cent disease incidence (PDI) worked out using the formula :

$$\text{PDI} = \frac{\text{Sum of all numerical rating}}{\text{Total number of leaves examined} \times \text{Maximum rating}} \times 100$$

The early blight disease was the predominant disease of tomato in konkan areas. The disease appears on leaves, stems, and fruits as well. The disease incidence was maximum during February, March and April which declined afterwards. The data pertaining to incidence of early blight disease are depicted in Table 1.

The results presented in Table 1 revealed that the

Table 1 : Survey and surveillance to record early blight of tomato on farmers field in Konkan region

Sr. No.	District	Tehsil	Area surveyed (ha)	Per cent disease incidence (%)
1.	Thane	Palghar	1.469	50.61
		Wada	1.761	50.77
		Vasi	1.000	42.20
		Shahapur	1.030	49.68
2.	Raigad	Pen	1.485	34.78
		Panvel	0.520	44.58
		Goregaon	1.326	26.33
		Mangaon	0.900	40.00
3.	Ratnagiri	Khed	0.485	32.67
		Dapoli	0.735	47.30
		Guhaghar	0.326	33.93
		Chiplun	0.345	38.30
4.	Sindhudurg	Vengurle	0.245	40.13
		Kankawali	0.270	43.77
		Devgad	0.135	39.56
		Mean	0.8021	40.974

incidence of early blight was higher at Wada Tahsil (50.77%) of Thane district followed by Dapoli Tahsil (47.30%) of Ratnagiri district, Panvel Tahsil (44.58%) of Raigad district and Kankawali Tahsil (43.77%) of Sindhudurg district showed near about same incidence, but comparatively less incidence was compared to Wada and Dapoli tahsil.

Results revealed that the mean incidence of early blight was 40.97 per cent in Konkan, indicating that these as the major disease of tomato in Konkan. The per cent disease incidence was recorded in Konkan region ranged from 26.33 to 50.77 per cent. The maximum per cent disease incidence recorded in Wada Tahsil of Thane district 50.77 per cent and minimum per cent disease incidence recorded of Goregaon Tahsil in Raigad districts 26.33 PDI in Konkan region. The terminal disease incidence ranged between 42.20 to 50.77 per cent in Thane district. In Raigad district 26.33 to 44.58 per cent disease incidence. The survey also revealed that Ratnagiri district per cent disease incidence was ranged between 32.67 to 47.30 per cent and in Sindhudurg district 40.13 to 43.77 per cent. The minimum disease was observed in Goregaon Tahsil (26.33%) of Raigad district and the maximum per cent disease was observed in Wada Tahsil (50.77%) of Thane district.

The above results were conformed to those of Shelke (1990) who conducted survey around Dapoli Tahsil and reported that the average PDI of early blight disease ranged between 13.05 to 35.0 per cent. Tumwine *et al.* (2002) conducted survey in Uganda and observed that fungal blight was the major disease. Kamble (2005) conducted a survey in Thane and Raigad district in Konkan region on early blight and recorded 33.80 and 47.75 per cent disease incidence in Raigad and Thane district, respectively.

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