

Original Research Article

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## Prevalence of Foliar Diseases in Pomegranate in Banaskantha District, Gujarat, India

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### ABSTRACT

#### Keywords

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Survey for the pomegranate plantation and prevalence of foliar diseases was conducted in different villages of Tharad, Deodar and Bhabhar talukas of Banaskantha district of Gujarat state during 2017 and 2018. It was assessed that the intensity of foliar diseases of pomegranate was recorded severe in Bhabhar talukas, followed by Deodar and Tharad talukas. The maximum incidence of leaf spot (14.10%) and fruit spot (13.81%) was recorded in Bhabhar taluka.

### Introduction

Pomegranate (*Punica granatum* L.) is an ancient fruit, belonging to the botanical family Lythraceae. Pomegranate is an important fruit crop grown in the sub tropical regions of India. It is also cultivated to a large extent in the west north area of Gujarat state. It is one of the most adaptable subtropical minor fruit crops and its cultivation is increasing very rapidly. The fruit is very much liked for its cool and refreshing juice. The arils of the well matured fruit are consumed as such and also in processed form like juice or concentrate, syrup and jelly. The total area under cultivation of pomegranate in

India is 107 thousand ha and production is around 743 thousand tones. Maharashtra is the leading producer of pomegranate followed by Karnataka, Andhra Pradesh, Gujarat and Tamil Nadu. Ganesh, Bhagwa, Ruby, Arakta and Mridula are the major varieties of pomegranates grown in Andhra Pradesh and Tamil Nadu states of the country. Gujarat ranks fourth in pomegranate cultivation having 4.4 thousand hectares area with 45.6 thousand tone production.

Major diseases that affect pomegranate fruit are bacterial blight (*Xanthomonas axonopodis* pv *punicae*), anthracnose (*Colletotrichum gloeosporoides*) and wilt complex

(*Ceratocystis fimbriata*). In the recent years, foliar disease of pomegranate that poses a greater challenge to pomegranate cultivation. The quality of fruits degraded due to leaf spot disease. This disease caused severe losses in term of quality and quantity. The market value decreased drastically due to leaf spot as well fruit spot.

### Materials and Methods

Surveys were conducted in major pomegranate growing area of Tharad, Deodar & Bhabhar talukas of Banaskantha district. Two villages from each talukas of Banaskantha district having maximum area was selected for the study. Three orchards of pomegranate were selected from each village. To find out the foliar disease severity, five plants were selected randomly from each orchard. In each plant, twenty five leaves and fruit were randomly selected to observe the per cent disease intensity.

Per cent disease intensity was worked out by using formula given by (Datar and Mayee, 1981) as below.

$$\text{Per cent Disease Intensity} = \frac{\text{Sum of all individual ratings}}{\text{Total plants observed}} \times \frac{\text{Maximum rating}}{100} \times 100$$

### Results and Discussion

Survey was conducted at fortnight interval in Tharad, Bhabhar and Deodar taluka of Banaskantha district. In each taluka, randomly two villages were selected and in each village, five orchards were surveyed during June, 2017 to December, 2017. Table 1 and 2 revealed that the highest disease intensity was recorded in Bhabhar taluka, followed by Deodar, and Tharad taluka. The maximum intensity of leaf spot and fruit spot was recorded around 14.10% and 13.81%, respectively in Bhabhar taluka, and 5.95%, and 7.35% respectively in Tharad taluka. The severity of leaf spots reaches maximum during August, September and October, whereas severity in fruits increases from October, November and December. Padule and Kaulgand (1991) reported that leaf and fruit spots of pomegranate was prevalent existing disease.

**Table.1** Survey of Pomegranate leaf and fruit spot on farmers' field during Mrig bahar

Place		Percent Disease incidence			
Taluka	Village	Leaf spot		Fruit spot	
		2017	2018	2017	2018
Tharad	Vadgamda	5.31	2.77	8.01	3.13
	Bhapi	6.60	3.37	6.68	2.51
<b>Average of Tharad</b>		<b>5.95</b>	<b>3.07</b>	<b>7.35</b>	<b>2.82</b>
Deodar	Liladhar	10.57	3.57	11.17	3.23
	Bhesana	8.48	3.50	10.82	3.51
<b>Average of Deodar</b>		<b>9.52</b>	<b>3.53</b>	<b>11.00</b>	<b>3.37</b>
Bhabhar	Jasanwada	14.77	7.11	13.69	5.57
	Devkapdi	13.42	6.05	13.94	4.57
<b>Average of Bhabhar</b>		<b>14.10</b>	<b>6.58</b>	<b>13.81</b>	<b>5.07</b>
<b>Average</b>		<b>9.86</b>	<b>4.39</b>	<b>10.72</b>	<b>3.75</b>

Similar observations were reported by Jagdale (2013). Jayalashmi (2010) studied that the mean PDI is maximum where the plant aged more than 5 years. Most of the grower of north Gujarat grow the pomegranate in three bahar namely Ambay bahar, Hast bahar and Mrig bahar. Severity of leaf and fruit spot was severe in Mrig bahar. Similar results have been reported by Prashant (2007). Jamadar and Patil (2011) revealed that anthracnose of pomegranate is most serious during rainy season. Chavan and Dhutraj (2017) was conducted a survey on anthracnose of pomegranate caused by *Colletotricum gloeosporioides* in Marathwada region.

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