

## Survey for the Prevalence of Fruit Rot of Chilli in Northern Karnataka

Shilpa R. Koppad<sup>1\*</sup> and R. K. Mesta<sup>2</sup>

<sup>1</sup>Kittur Rani Channamma College of Horticulture, Arabhavi

<sup>2</sup>College of Horticulture, Bagalkot

University of Horticultural Sciences, Bagalkot [shilpark642@gmail.com](mailto:shilpark642@gmail.com)

\*Corresponding Author E-mail: [rkmesta@rediffmail.com](mailto:rkmesta@rediffmail.com)

Received: 21.06.2017 | Revised: 18.07.2017 | Accepted: 24.07.2017

### ABSTRACT

A roving survey was conducted to know the severity of *Colletotrichum capsici* in Belagavi, Dharwad, Gadag and Haveri districts during kharif / rabi 2013-14. The overall disease severity was ranged from 19.21 to 59.14 percent. The highest severity (59.14percent) of fruit rot was noticed in fields of Sankeshwar village in Belagavi district, while, least (19.21percent) incidence of the disease was recorded at Hulkoti village in Gadag district.

**Key words:** Chilli, *Colletotrichum Capsici*, Disease Incidence, Fruit Rot, Survey

### INTRODUCTION

*Capsicum annuum* L. (Chilli), is one of the important spices cultivated all over the world. In India, dry chilli is grown over an area of 7.94 lakh hectares with production of 13.04 lakh tonnes and productivity of 1.6 tonnes per hectare. The Byadgi variety of chillies which have export potential are mainly grown in transitional tract of Karnataka occupying an area of 1.00 lakh hectares with production of 1.07 lakh tonnes and productivity of 1.06 tonnes per hectare<sup>1</sup>. However, fruit rot of chilli caused by *Colletotrichum capsici* (Syd.) Butler and Bisby, is one of the major problem in chilli, which not only reduces yield, but also brings down the quality of chilli<sup>2</sup>. In Karnataka, Haveri has been considered as 'hot spot' for fruit rot of chilli with severity of 36.4 per cent<sup>3</sup>. Yield losses due to fruit rot varied from 10–60 per cent in different parts of

India<sup>4</sup>. So an attempt was made to find out the status of fruit rot incidence of anthracnose of chilli in northern Karnataka. In the present study, an exhaustive survey was conducted in Belagavi, Dharwad, Haveri and Gadag districts during kharif / rabi 2013-14 to know the incidence and severity of the disease in order to work out the management strategies on large scale basis.

### MATERIALS AND METHODS

Roving survey was conducted to know the severity of fruit rot in the above mentioned districts of Karnataka. In each districts two to three taluks were selected and in each selected taluk, different villages were selected. In each selected village five farmer's fields were selected and disease severity was assessed in percentages at fruiting stage.

**Cite this article:** Koppad, S.R. and Mesta, R.K., Survey for the Prevalence of Fruit Rot of Chilli in Northern Karnataka, *Int. J. Pure App. Biosci.* 5(6): 1176-1179 (2017). doi: <http://dx.doi.org/10.18782/2320-7051.5017>

Per cent incidence of the disease was recorded in each field and Mean for each village. Disease intensity was measured by grading the

fruits using 0-9 scale<sup>5,6</sup>. The scale is as follows.

Grade	Percent fruit infection	Disease reaction
0	0%	Immune
1	1-10%	Resistant
3	11-25%	Moderately resistant
5	26-50%	Moderately susceptible
7	51-75%	Susceptible
9	>75%	Highly susceptible

Per cent Disease Index (PDI) was calculated by using formula as follows<sup>7</sup>.

$$\text{Per cent disease index (PDI)} = \frac{\text{Sum of numerical values}}{\text{Number of plants Observed} \times \text{Maximum Disease rating}} \times 100$$

## RESULTS AND DISCUSSION

The survey revealed that the disease was severe in all the four districts surveyed during *khari* 2013. The overall disease severity was ranged from 19.21 to 59.14 per cent. The highest severity (59.14percent) of fruit rot was noticed in fields of Sankeshwar village of Belagavi district. The least (19.21percent) incidence of the disease was recorded in Hulkoti village of Gadag district. With respect to the district means, highest mean disease incidence was recorded in Belagavi (49.21percent) followed by Gadag (42.18 percent) and Haveri (38.70 percent). The least incidence was noticed in Dharwad district (34.71percent) (Table. 1).

The severity of this disease varied from locality to locality and with respect to the varieties grown. Among the districts surveyed, severity of disease was more in Belagavi district, which may be due to susceptibility of cultivar grown their and favorable environmental conditions *viz.*, relative humidity (60-92%) and rain fall (83.8 mm). They must have favored the buildup of inoculums and subsequently showed increased disease severity. Whereas Gadag district has recorded less severity compared to other district. This may be due to unfavorable environmental relative humidity (33-85%) and

rain fall (25.6 mm) during October month which affected the sporulation and disease spread. The present investigation from survey revealed that the chilli anthracnose was more severe and predominant in farmer's field.

In Karnataka, Haveri has been considered as 'hot spot' for fruit rot of chilli with severity of 36.4 per cent<sup>3</sup>. Several diseases, particularly of fungal origin, attack the chilli crop. Among these, fruit rot, caused 10-15 per cent losses to mature fruits during transit and storage in Udaipur<sup>8</sup>. Survey was conducted in chilli growing areas in Tarai belt of Uttaranchal, during the crop season and reported plants showing anthracnose symptoms, particularly dieback and fruit rot<sup>9</sup>. after survey in northern Karnataka, *C. capsici* was the most predominant fungi (71.24 per cent) associated with chilli. Seed samples collected from Haveri district showed maximum infection of *Colletotrichum capsici*<sup>10</sup>.

The present investigation from survey revealed that the fruit rot of chilli occurs in more severe form in farmer's field, if the environmental conditions are very much congenial. Also the areas where the fruit rot is recorded in severe form are found practicing chilli cultivation over the years without crop rotation. The continuous cultivation of chilli

crop helps pathogen to survive in debris during the off season and flourish when the new crop is planted. Hence there is need to adapt crop rotation and plan for taking suitable

management strategies whenever there is forecast of climatic conditions favorable for the outbreak of fruit rot of chilli.

**Table 1: Survey for the prevalence of fruit rot of chilli in northern Karnataka**

Sl. No.	District	Taluk	Village	Variety	PDI (%)
1	Belagavi	Gokak	Kallolli	PusaJwala	43.63
			Ghataprabha	Garima	49.32
			Arabhavi	Jwala	38.30
			Sangankeri	Jwala	39.21
			<b>Mean</b>		<b>42.61</b>
		Hukkeri	Sankeshwar	Sankeshwar local	59.14
			Kamatnur	Golden hot	52.45
<b>Mean</b>		<b>55.80</b>			
<b>Mean</b>					<b>49.21</b>
2	Dharwad	Kundagol	Gudgeri	ByadagiKaddi	28.96
			Devanur	DyavnurDelux	38.68
			<b>Mean</b>		<b>33.82</b>
		Kalaghatgi	Gandyapur	DyavanurKaddi	39.98
			Dummavad	Tejaswini	40.71
			<b>Mean</b>		<b>40.34</b>
		Dharwad	Amlikoppa	ByadagiKaddi	23.64
			Chandanmatti	Guntur	24.98
			<b>Mean</b>		<b>29.97</b>
<b>Mean</b>					<b>34.71</b>
3	Haveri	Shiggaon	Bisanalli	Guntur	33.85
			Hire Mallur	ByadagiKaddi	37.79
			<b>Mean</b>		<b>35.82</b>
		Savanur	Huralikuppi	G -4	42.65
			Sirbadgi	ByadagiDabbi	40.49
			<b>Mean</b>		<b>41.57</b>
<b>Mean</b>					<b>38.70</b>
4	Gadag	Shirahatti	Laxmeshwar	Jwala	42.59
			Doddur	Guntur	50.19
			<b>Mean</b>		<b>46.39</b>
		Naragund	Bairanhatti	ByadagiKaddi	35.00
			Jagapur	Local	45.53
			<b>Mean</b>		<b>40.26</b>
		Gadag	Lakkundi	Paprika	20.55
			Hulkoti	Paprika	19.21
			<b>Mean</b>		<b>39.88</b>
<b>Mean</b>					<b>42.18</b>

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