

Survey for the intensity of anthracnose disease of banana caused by *Colletotrichum musae* in northern parts of Karnataka

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ABSTRACT :

Banana anthracnose caused by *Colletotrichum musae* is one of the major post harvest disease. Present research was aimed at studying the intensity of banana anthracnose in major banana fruit markets of Belgaum and Bagalkot districts of Karnataka. Roving survey was conducted in major banana fruit markets of Belgaum and Bagalkot districts of Karnataka during 2013-2014 and it revealed that the intensity of the disease ranged from ten to thirty eight per cent. The highest intensity of 38.00 per cent was recorded in Belgaum and Munavalli on Grand Naine cultivar and the least intensity of the disease was recorded in Munavalli (13.00%) on Rajapuri cultivar.

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INTRODUCTION

Banana is one of the most important tropical fruit crop of the world as well as India. Banana (*Musa* spp.) belongs to family Musaceae. Banana is susceptible to several diseases resulting in massive and extensive postharvest losses during transportation and storage (Basel *et al.*, 2002). Anthracnose, caused by the fungus *Colletotrichum musae* (Berk. and M.A. Curtis) Arx, is the most important postharvest disease of banana that can result in 30 to 40 per cent losses of marketable fruit (Ranasinghe *et al.*, 2002). Anthracnose is a latent infection where fungal spores infect immature banana in the field but symptoms occur as peel blemishes as black or brown sunken spots of various sizes on fruit

that may bear masses of salmon-colored acervuli with their associated conidia on the fruit peel after ripening (Ranasinghe *et al.*, 2005).

So, the present study was, therefore, conducted to examine the intensity of banana anthracnose disease in major banana fruit markets of Belgaum and Bagalkot districts of Karnataka.

MATERIAL AND METHODS

The survey for the anthracnose disease of banana was under taken in major fruit markets of Belgaum and Bagalkot districts. Roving survey was conducted during 2013-2014 in major fruit markets of Belgaum, Munnavalli, Gokak, Ghataprabha, Bailahongal, Yergatti and Lokapur.

In each place, six to eight baskets of fruits were randomly selected and in each basket three hands were examined. Observations were recorded with respect to intensity of the anthracnose disease. A 0-4 scale was followed for scoring the disease intensity.

where,

0 = No disease symptoms

1 = Small restricted lesions covering 25 per cent of the fruit surface.

2 = Large restricted lesions covering 50 per cent of fruit surface.

3 = Radiating lesion formed by coalescence of small ones covering 75 per cent of the fruit surface.

4 = Fruits completely rotten.

RESULTS AND DISCUSSION

Roving survey was conducted during 2013-2014 in major fruit markets of Belgaum, Gokak, Munavalli, Ghataprabha, Bailahongal, Yargatti and Lokapur in Belgaum and Bagalkot districts of Karnataka to assess the intensity of anthracnose disease on different cultivars

of banana. In the month of October-November 2013, the intensity of disease was highest (31.00 %) in Gokak market on Grand Naine followed by Rajapuri (16.00 %) and it was lowest in Poovan (15.0 %). In Ghataprabha, the disease intensity of 23.0 per cent was observed on cv. GRAND NAINÉ. In Yargatti the disease intensity was highest (30.0 %) on Grand Naine followed by Rajapuri (18.0 %). In Lokapur, the disease intensity was 20.0 per cent in cultivar GRAND NAINÉ (Table 1). In Belgaum fruit market, the intensity of the disease varied from cultivar to cultivar. The highest disease intensity was recorded on cultivar GRAND NAINÉ (35.0 %) followed by Robusta (28.0 %), Poovan (23.00 %) and Rajapuri (13.5 %) and it was lowest on Ney Poovan (11.0 %). In Munavalli, the intensity of the disease was 36.25 per cent on Grand Naine cultivar followed by Rajapuri (10.0 %). The intensity of the disease was less in Bailahongal fruit market (15.0 %) on cultivar GRAND NAINÉ.

During the month of February –March 2014, the intensity of disease was highest (33.00 %) on cv. GRAND NAINÉ followed by Rajapuri (17.50 %) and it was lowest

Table 1: Roving survey for intensity of anthracnose disease of banana caused by *Colletotrichum musae* (2013-2014)

Place	Cultivar	Disease intensity (%)	
		October-November 2013	February-March 2014
Belgaum district			
Belgaum	Poovan (AAB)	23.00	25.00
	Ney Poovan (AB)	11.00	14.00
	Robusta (AAA)	28.00	30.00
	Rajapuri (AAB)	13.50	14.00
	Grand Naine (AAA)	35.00	38.00
Mean		22.10	24.20
Munavalli	Rajapuri (AAB)	10.00	13.00
	Grand Naine (AAA)	36.25	38.00
Mean		23.12	25.5
Gokak	Rajapuri (AAB)	16.00	17.50
	Grand Naine (AAA)	31.00	33.00
	Poovan (AAB)	15.00	17.00
Mean		20.66	22.50
Bailahongal	Grand Naine (AAA)	15.00	18.00
Ghataprabha	Grand Naine (AAA)	23.00	25.00
Yargatti	Grand Naine (AAA)	30.00	34.00
	Rajapuri (AAB)	18.00	21.00
Mean		24.00	27.50
Bagalkot district			
Lokapur	Grand Naine (AAA)	20.00	23.00

in Poovan (17.00 %) in Gokak fruit market. In Ghataprabha, the disease intensity was 25.00 per cent on cultivar GRAND NAINA. In Yargatti, the disease intensity was highest (34.00 %) on Grand Naine followed by Rajapuri (21.00 %). In Lokhapur, the disease intensity was 23.00 per cent in cultivar GRAND NAINA. In Belgaum, the intensity of the disease was highest (38.0 %) on cv. GRAND NAINA followed by Robusta (30.0 %), Poovan (25.0 %) and it was lowest in cultivar Neypoovan (14.0 %). In Munavalli, the anthracnose disease intensity was 38.0 per cent on GRAND NAINA cultivar. The disease was recorded in Bailhongal on cultivar GRAND NAINA (18.0 %). The intensity and the average fruit loss due to the banana anthracnose disease was previously reported by several workers on different regions. Chenulu and Thakur (1968) reported that the fungus *Gloeosporium musarum* caused fruit rot of banana causing a average loss of 14.63 per cent in Delhi markets.

With respect to intensity of the disease on cultivars, the highest disease intensity was recorded on cv. GRAND NAINA followed by Robusta and Rajapuri. Reyes *et al.* (1998) observed that crown rot affected export bananas in all banana-producing countries and was considered to be one of the main export banana post harvest diseases. Anthracnose, caused by the fungus *Colletotrichum musae* (Berk. and M.A. Curtis) Arx, is

the most important postharvest disease of banana that can result in 30 to 40 per cent losses of marketable fruit (Ranasinghe *et al.*, 2002).

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