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Survey and occurrence of cashew anthracnose disease under Odisha condition

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Abstract

Cashew Anthracnose caused by *Colletotrichum gloeosporioides* is an important disease and found severe in Odisha Condition. A survey was conducted during 2016-2018 at AICRP on cashew, OUAT Bhubaneswar and farmers' field in different places of Odisha viz. Konark, Banki, Athgarh, Kalahandi, Phulbani, Sonepur and Koraput to know the incidence of cashew anthracnose. The survey results revealed that the incidence of cashew anthracnose ranged from 15.4 to 34.5%. In Sonepur district the least percent of incidence was recorded i.e. 15.4%, Where as the highest incidence was noticed at AICRP on cashew, OUAT, Bhubaneswar i.e. 34.5%.

Keywords: Survey, cashew, anthracnose, Odisha

Introduction

Cashew (*Anacardium occidentale* L.) is popularly known as the 'Gold mine' of wasteland. Cashew was originally introduced into India from Brazil in the sixteenth century mainly for checking soil erosion on the coast. Initially, it was considered as a suitable crop for soil conservation, afforestation and also wasteland development but gradually gained commercial importance.

Odisha stands third in Cashew cultivation, production and processing in India, claiming 16% of land under cashew cultivation area at 1.68 Lakh hectares and producing 1,00,000 MT of raw cashew nut (13.6% of India's raw cashew nut production). The major cashew growing districts in Odisha are Dhenkanal, Koraput, Cuttack, Puri, Ganjam, Sambalpur, Balasore and Sundargarh. As on date, there are more than 350 cashew processing industries processing approximately 125000 MT of raw cashew nuts, thus generating 35,000 employment opportunities every day. Raw cashew nut sector generates annual revenue of Rs 950 crores converting raw cashews into kernels by processing earn an additional value of more than Rs 250 crores. Hence Odisha cashew sector generates approximately Rs 1200 crores every year. Various factors are responsible for low yield of the crop especially diseases play a vital role. There are more than 12 diseases which are reported to infect cashew tree worldwide. Anthracnose foliar blight, fruit rot, gummosis of twigs and trunk are often considered as the most relevant diseases causing severe damages across cashew growing areas. Among the diseases anthracnose caused by (*Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc.), perfect stage (*Glomerella cingulata* (Ston.) Spauld. & Schrenk) is a common pathogen of cashew causing huge loss in yield. Looking to this, the survey was made to know the occurrence of this important disease in Odisha condition.

Materials and Methods

A survey was conducted during 2016-2018 at AICRP on cashew, OUAT Bhubaneswar and farmers' field in different places of Odisha viz. Konark, Banki, Athgarh, Kalahandi, Phulbani, Sonepur and Koraput to know the incidence of cashew anthracnose. Observations with regards to infection and symptoms development were recorded on the basis of disease rating by using 0 - 6 scale. The per cent disease index was calculated as per the standard procedure by adopting the prescribed scale using the formula by Narasimhudu (2007)^[1] as given below:

$$PDA = \frac{\text{Sum of all numerical ratings} \times 100}{\text{Total number of observation} \times \text{Maximum disease rating}}$$

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For recording the disease incidence of the test samples, the standard scale of (0-6) was followed as indicated below

Table 1: Showing Scale, disease severity and disease incidence of *Colletotrichum gloeosporioides*

Sl. No	Scale (0-6)	Disease Severity	Disease incidence
1	0	Immune	No incidence
2	1	Highly resistant	1-5% incidence
3	2	Resistant	6-10% incidence
4	3	Moderately resistant	11-25% incidence
5	4	Moderately susceptible	26-50% incidence
6	5	Susceptible	51-75% incidence
7	6	Highly susceptible	>75% incidence

Result

A survey was conducted during kharif and Rabi, 2017 and 2018 in different cashew growing areas particularly in the farmers' field of Konark, Banki, Athagarh, Kalahandi, Phulbani, Sonepur, Koraput and AICRP on Cashew, OUAT, Bhubaneswar. The survey results revealed that the incidence of cashew anthracnose ranged from 15.4 to 34.5%. In Sonepur district the least percent of incidence was recorded i.e. 15.4%, where as the highest incidence was noticed at AICRP on cashew, OUAT, Bhubaneswar i.e. 34.5%. The data pertaining to survey was presented in the table 2.

Table 2: Survey for the incidence of Cashew anthracnose in different places of Odisha

Sl. NO	Place	PDI (%)
1	AICRP On Cashew	34.5
2	Konark	26.8
3	Banki	20.5
4	Athagarh	32.8
5	Kalahandi	18.6
6	Phulbani	25
7	Sonepur	15.4
8	Koraput	18.5

Discussion

During June, 2017 to April, 2018 a survey was conducted in different cashew growing areas of Odisha and found that anthracnose disease range from 15.4% to 34.5%. Akhtari khatoon (2016)^[2] reported from Odisha that the mean disease incidence ranged from 10.5% to 32.4% which supports our finding in respect of severity of the disease in cashew.

Conclusion

The survey conducted during kharif and rabi season 2017-18 in different cashew growing areas of Odisha like Konark, Banki, Athagarh, Kalahandi, Phulbani, Sonpur, Koraput and AICRP on cashew, OUAT, Bhubaneswar. The results revealed that the incidence of cashew anthracnose ranged from 15.4% to 34.5%.

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