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## Management of die back disease of cashew in coastal Karnataka region

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**Abstract**

The cashew belongs to the family Anacardiaceae and is a tropical evergreen tree that produces the cashew seed (nut) and the cashew apple. The cashew is originally native to north-eastern Brazil. The cashew nut, often simply called a cashew, is widely grown as a hardy crop. Mainly cashew is affected by major fungal disease die back causes nearly 70 per cent of yield loss. From studies it is confirmed that spraying with Triazoles group of fungicides like Hexaconazole, Propiconazole and Difenconazole 25% EC @ 0.1% twice @ 25 days interval recorded least percent disease incidence and play very important role in management of the disease.

**Keywords:** Die back, paraphyses, pycnidial, conidia

**Introduction**

Cashew *Anacardium occidentale* L. is popularly known as the 'Gold mine' of wasteland belongs to the family Anacardiaceae is one of the most important commercial crop of India specially grown in Maharashtra, Kerala, Karnataka, Odisha, Andrapradesh and some parts of Tamilnadu (Shanthi and Vittal, 2012) [4]. Cashew was originally introduced into India from Brazil in the sixteenth century for checking soil erosion on the coast later gradually gained commercial importance (Paula Pessoa *et al.*, 1975) [2].

In Karnataka cashew crop is majorly concentrated in coastal region and some parts of Malanad and Maidan areas. The diseases of cashew considered as minor importance in earlier days. Now some of them found to be serious to cause considerable losses in cashew plantations. Even though cashew is a hardy crop it is majorly affected by some of the pest *viz.*, Tea mosquito bug and cashew Stem borer, disease like Powdery mildew, Die back, Anthracnose etc. A number of fungi are found to attack the cashew crop thereby leading to loss in productivity (Adeniyi *et al.*, 2011) [1]. Among the diseases cashew die back is found to be severe these days causing nearly 25-30 per cent of yield loss. The disease severe especially during the monsoon period. The characteristic symptom includes the drying of floral branches and minute water soaked lesions on the main rachis and secondary rachis. The lesions are pinkish brown, enlarge and soon turn scabby. Gummy exudates can be seen at the affected regions. The lesions develop into bigger patches and result in drying up of the inflorescences. The incidence is very severe when cloudy weather prevails.

Keeping the above aspects into consideration study has been conducted at ZAHRS Brahmavara with the title Management of cashew die back disease caused by *Lasiodiplodia theobromae* (Teixeira, 1988) [5] in coastal Karnataka. *Lasiodiplodia* species are common, especially in tropical and subtropical regions where they cause a variety of diseases, according to the genus is based on *Lasiodiplodia theobromae* (Punithalingam *et al.*, 1980) [3]. The main features that distinguish this genus from other closely related genera are the presence of pycnidial paraphyses and longitudinal striations on mature conidia.

**Materials and Methods**

The research has been conducted at ZAHRS Brahmavara Udipi during the period of Kharif 2019-20 when the disease incidence usually noticed. The experiment was laid at Randomized Complete Block Design (RCBD) with seven treatments and three replications. Each treatment consists of six plants with two plants per replication. All the plants in an orchard were with a standard spacing of 8x8m followed by recommended horticultural practices like fertilizer management and other intercultural operations. The required quantity of chemicals were weighed and dissolved in water and sprayed at 25-30 days interval as per the treatments using power sprayer, observations were recorded at fortnight interval.



Cashew dieback initial symptoms

### Data analysis

The data was subjected to statistical analysis by adopting RCBD Design by Gomez and Gomez. The critical difference (CD) values are given at 5 per cent level of significance, wherever the 'F' test was significant.

### Results and discussion:

The use of fungicides has become an inevitable method in the management of plant diseases particularly in Cashew nut. From the data presented in Table 1, we can conclude that the incidence of disease before application of treatment was same

in all the treatments *i.e* up to 45-60 per cent. After the subsequent three sprays, the Treatment 2: Propiconazole 25% EC @ 0.1% recorded 33.67 per cent of lowest disease incidence with maximum disease reduction of 55.36 per cent over the control. Where as in Treatment 1. Hexaconazole 5% EC @ 0.2% recorded 31.74 per cent of disease incidence with 52.92 per cent disease reduction over the control. The treatment T1, T2 and T3 are on par with each other. In Treatment 6: Copper oxy chloride @ 0.25% recorded the least disease reduction of 36.79 per cent.

**Table 1:** Management of dieback of cashew nut in coastal Karnataka 2019-20

Sl. No.	Treatment details	PDI (2019)		PDR Over the control
		1 <sup>st</sup> Spray	3 <sup>rd</sup> Spray	
T <sub>1</sub>	Hexaconazole 5% EC @ 0.2%	50.67 (45.41)	31.74 (34.26)	52.92
T <sub>2</sub>	Propiconazole 25% EC @ 0.1%	53.33 (46.93)	33.67 (35.49)	55.36
T <sub>3</sub>	Difenconazole 25% EC @ 0.1%	51.00 (45.60)	35.00 (36.29)	53.59
T <sub>4</sub>	Carbendazim 12% + Mancozeb 63% WP @ 0.25%	56.33 (48.66)	44.33 (41.77)	41.22
T <sub>5</sub>	Propineb 70 WP twice @0.2%	53.00 (46.74)	41.33 (39.95)	45.20
T <sub>6</sub>	Copper oxy chloride @ 0.25%	55.33 (48.08)	47.67 (43.68)	36.79
T <sub>7</sub>	Untreated control	60.33 (50.99)	75.42 (60.31)	0.00
	S .Em. ±	0.63	0.58	
	CV%	2.03	1.13	
	CD% (0.05)	1.2	1.40	

PDI- Per cent Disease Incidence.

PDR- Per cent Disease Reduction.

### Conclusion

From the above studies it is confirmed that Spraying with Triazoles group of fungicides like Hexaconazole, Propiconazole and Difenconazole 25% EC @ 0.1% twice @ 25 days interval recorded least percent disease incidence and highest per cent disease reduction over the control.

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