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Thanjore Wilt of Coconut

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Abstract: *In coconut, Basal stem rot is also known as Thanjore (Thanjavur) wilt in Tamil Nadu. It is also known as bole rot. In India, the fungal causal organism of Thanjore wilt of coconut, Ganoderma lucidumwas first recorded by Butler in Karnataka state in 1913. In Tamil Nadu, the disease was noticed in Thanjavur district in 1952 so they named Thanjavur wilt. In recent years, the disease occurs in all coconut growing districts of Tamil Nadu. The occurrence of basal stem rot which kills the whole palm so it threatening the coconut industries not only in Tamil Nadu but also in neighboring states.*

Keywords: Basal stem

I. INTRODUCTION

In coconut, Basal stem rot is also known as Thanjore (Thanjavur) wilt in Tamil Nadu. It is also known as bole rot. In India, the fungal causal organism of Thanjore wilt of coconut, *Ganoderma lucidum*was first recorded by Butler in Karnataka state in 1913. In Tamil Nadu, the disease was noticed in Thanjavur district in 1952 so they named Thanjavur wilt. In recent years, the disease occurs in all coconut growing districts of Tamil Nadu. The occurrence of basal stem rot which kills the whole palm so it threatening the coconut industries not only in Tamil Nadu but also in neighboring states.

Symptoms

The diseased palm Shows the symptoms in different part viz, leaves, stem and inflorescence

Leaves

Initial symptom starts with yellowing and drooping of the outer whorl of leaves.

Stem

Exudation of viscous Reddish brown liquid through cracks at the base of the stem and oozing spreads upward. The bleeding tissue are rotting and decaying and soft to touch. The bark became brittle and leaving open cracks and crevices. The internal tissues are disintegrated and discoloured, emitting bad smell. Peculiar symptoms of Ganoderma were Bracket formation at the base of the trunk. Ultimately the palm dies off.

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Inflorescence

In diseased palm, arrest of flower development and button shedding is common. Also in severely diseased palms, decreasing of oil content, copra weight, water content and nut & kernel weight.

Pathogen character

Ganoderma lucidum: Mycelium - hyaline, thin walled, clamp connection;
Chlamydospores - terminal or intercalary, ellipsoid, thick walled
Fruiting body - perennial, stipitate, corky
Basidiospores - thick walled, brown, truncated at one end

Epidemiology

The spread is through root contact between healthy and diseased palms. Repeated ploughing in the disease infected field, Irrigation channels along the row where diseased palm exist, Uncontrolled flood irrigation in entire field aids the rapid spread of *Ganoderma*. More number of palms wilted between the month of March and August.

Integrated Disease Management

Cultural method

Remove and destroy the infected palms
Ring method of irrigation - to avoid the flow of water from diseased to healthy palm
Green manure crops raised as intercrop and incorporate at the time of flowering
Banana intercropping in wilt infected field is recommended to manage the disease (Bhaskaran et al.,1989)
Application of recommended dose of 0.56Kg N, 0.32Kg P_2O_5, 1.5Kg K_2O per palm per year along with 50 Kg farmyard manure and Neem cake 5 Kg enhance antagonists and reduce the disease severity (Vijayan and Natarajan 1975)

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Biological method

Application of 500g inoculum of *Trichoderma harzianum*along with organic green leaves(50kg) or neem cake(5kg) (Srinivasalu et. al.,2004)

Farm yard manure(50kg) + 1% Bordeaux mixture as soil drenching was effective in disease control under field condition (Karthikeyan et.al., 2005, Karthikeyan et.al.,2006)

Soil application of talc formulation of *Pseudomonas flurosence* +*Trichoderma viride* each at the rate of 200g along with 50kg farm yard manure is advocated for containing the disease (Karthikeyan et.al., 2005 and Surulirajan, 2014)

Soil application of *Azotobactor* 200g and *Azospirillum* 200g along with 10kg farm yard manure enhances the soil health by reducing the pathogen population (Karunanidhi et. al. 2007)

Chemical method

Soil drenching with 40 litres of 1 % Bordeaux mixture or 0.05 % carboxin around the trunk in a radius of 1.5m

Root feeding of Tridemorph Aureofungin sol 2.0g + 1.0g copper sulphate in 100 ml of water thrice at quarterly intervals reduce in disease incidence and increase the nut yield in Tamil Nadu

Root feeding with hexaconazole 2ml in 100ml water at quarterly intervals reduce the disease incidence (Naik 2001)

II. CONCLUSION

Ganoderma reduce the quality and yields in coconut and also palm dies off. IDM strategies minimize the loss and increase the marketable value of crops. Cultural practices such as ring irrigation,Greenmanure,Banana intercrop and Biological control such as Trichoderma so., Pseudomonas sp., helps to prevent the disease incidence.