



**Biotica
Research**

Today

**Vol 3:7 631
2021 633**

Diseases of Coconut and It's Management

**Brindhadevi S.^{1*}, Soban Babu G.¹,
Devi Shanthini V.¹, Chandrika R.¹ and
Ruppavalli M. V. R.²**

¹Dept. of Plant pathology, Agricultural College and Research Institute, Madurai, Tamil Nadu Agricultural University (TNAU), Coimbatore, Tamil Nadu (625 104), India

²Dept. of Plant pathology, Agricultural College and Research Institute, Coimbatore, Tamil Nadu Agricultural University (TNAU), Coimbatore, Tamil Nadu (625 104), India



Open Access

Corresponding Author

Brindhadevi S.

e-mail: brindadevi555@gmail.com

Keywords

Chemical control, Coconut, Integrated disease management, Symptoms

Article History

Received in 20th July 2021

Received in revised form 25th July 2021

Accepted in final form 26th July 2021

E-mail: bioticapublications@gmail.com

How to cite this article?

Brindhadevi *et al.*, 2021. Diseases of Coconut and It's Management. *Biotica Research Today* 3(7): 631-633.

Abstract

Coconut is one of the important diseases causing severe yield loss. The disease is found to occur in southern parts of India in coconut growing areas such as Tamil Nadu, Kerala, Karnataka and Andhra Pradesh. The symptoms are manifested in the form of yellowing, withering and drooping of the outer fronds and oozing out reddish brown liquid from the base of the trunk. If the infected trees are left uncared, it becomes major threat to coconut, resulted in death of the palm. Hence, it is highly imperative to adopt suitable management strategy at the early stage itself. The disease can be effectively contained by integrating cultural, biological and chemical methods.

Introduction

Coconut plays a major role in the agrarian economy of India and being a predominant plantation crop in the southern states and coastal tracts, it contributes to the livelihood security of millions of farmers in the country. India ranks third in area, first in production and productivity in World coconut scenario and being grown in an extent of 20.9 lakh ha area with a production of 23,798 million nuts Southern states of India such as Tamil Nadu, Kerala, Karnataka and Andhra Pradesh are the major producers of coconut contributing for 88.8 percent of total area and 91.2 percent of total production in the country. Coconut is infected by many deadly and control debilitating diseases in India viz., bud rot, basal stem rot, stem bleeding and root (wilt) (Phytoplasma). The disease is also known as Ganoderma wilt, (Andhra Pradesh) or Tanjavur wilt (Tamil Nadu) or Bole rot or Anabe roga (Karnataka) in different areas (Naik, 2001).

1. Tanjore Wilt/ Basal Stem End Rot/ Ganoderma Wilt: *Ganoderma lucidum* and *Ganoderma applanatum*

Symptoms

Tanjore wilt (*Ganoderma* wilt) disease (Figure 1) start with yellowing and drooping of the outer whorl of leaves. This is followed by exudation of reddish brown liquid through cracks at the base of the trunk and oozing spread upwards. Decaying of tissues at bleeding point and rotting of the basal portion of the stem. The bark turns brittle and often gets peeled off in flakes, leaving open cracks and crevices. The internal tissues are discoloured, disintegrated and emitting a bad smell. Bracket formation at the base of the trunk during rainy season. Ultimately the palm dies off.



Figure 1: Exudation of reddish brown liquid and oozing is seen at base of the trunk

Managements

The bleeding patches in the stem may be chiseled and protected with tridemorph (5% calxin) and subsequently with hot coal tar. Aureofungin-sol 2 g + 1 g Copper Sulphate in 100 ml water applied as root feeding. The active absorbing root of pencil thickness must be selected and a slanting cut is made. Application of *Bacillus subtilis* and *Trichoderma viride* @ 100 g each per palm per year along with neem cake of FYM was found more effective in reducing the disease (Snehalatharani et al., 2016).

2. Bud Rot: *Phytophthora palmivora*

Symptoms

Bud rot (Figure 2) disease is yellowing of one or two younger leaves. Basal tissues of the leaf rot quickly and can be easily pulled out from the crown. In the later stages the spindle withers and drops down. The tender leaf base and soft tissues of the crown rot into a slimy mass of decayed material emitting foul smell. Ultimately the entire crown falls down and the palm dies. In adult palms, the first visible symptom is the colour change of the spear, which becomes pale and breaks at the base and hangs down. The rotting slowly progresses downwards, finally affecting the meristem and killing the palms. This is accompanied by drooping of successive leaves. Even then, nuts that are retained on the palm may grow to maturity.

Managements

Remove all the affected tissue of the crown region and drenching the crown with Copper oxychloride 0.25%. Apply Bordeaux paste and protect it from rain till normal shoot emerges. (Dissolve 100 gm of copper sulphate and 100 gm of quick lime each in 500 ml water separately and mix to form 1 litre of Bordeaux paste). Spray 0.25% Copper oxychloride or 1% Bordeaux mixture on the crown of the neighbouring palms as a prophylactic measure before the onset of monsoon. Palms that are sensitive (Dwarf palms) to

copper containing fungicides can be protected by mancozeb. Small, perforated sachets containing 2 g of mancozeb may be tied to the top of leaf axil. When it rains, a small quantity of the fungicide is released from the sachets to the leaf base, thus protecting the palm.



Figure 2: Leaves shows yellowing and basal tissues of the leaf rot quickly

3. Leaf Blight (LB): *Lasiodiplodia theobromae*

Symptoms

Leaf blight (Figure 3) disease causes serious damage in seedlings, leaves and nuts of adult palms. Generally the adult leaves in the outer whorls are affected. The affected leaflets start drying from the tip downwards and exhibit a charred or burnt appearance. Dark grey to brown lesions with wavy to undulated margins appear from the apex of the nuts. The fungus entered in to the kernel through mesocarp, resulting in a decay of the endosperm. The affected nuts were desiccated, shrunken, deformed and dropped prematurely and resulting in nut yield loss up to 10 to 25%. The incidence was noticed throughout the year and maximum incidence was observed during summer months. Spores and the resting structures on the affected portion of the leaves served as inoculum for further spread through wind.



Figure 3: The affected leaflets shows drying from the tip downwards

Managements

Management of this disease is Spray 1.0 percent Bordeaux mixture or 0.25 percent Copper oxychloride (2 times at 45 days interval during summer months). Root feeding of Carbendazim 2 g or Hexaconazole/ Tridemorph 2 ml + 100 ml water (3 times at 3 months interval).

4. Stem Bleeding: *Thielaviopsis paradoxa*

Symptoms

Stem bleeding (Figure 4) disease is faster during July to November. Stem Bleeding is characterized by the exudation of a dark reddish brown liquid from the longitudinal cracks in the bark and wounds on the stem trickling down for a distance of several inches to several feet. The lesions spread upwards as the disease progresses. The liquid oozing out dries up and turns black. The tissues below the lesions become rotten and turn yellow first and later black. In advanced cases, the inner portions of affected trunks are hollow due to decay of inner tissues.



Figure 4: Exudation of a dark reddish brown liquid seen on bark region

Managements

Chisel out completely the affected tissues and paint the wound with tridemorph 5% or Bordeaux paste. Apply coal tar after 1-2 days on the treated portion. Burn off chiseled pieces. Root feed with Tridemorph 5 ml in 100 ml water, thrice a year during April-May, September-October and January-February to prevent further spread of lesions.

Conclusion

Coconut is one of the important biotic constraints in coconut production which drastically reduces the nut yield. Detection of disease at early stage is highly essential to combat the disease and preventing the palm from death. Therefore the constant monitoring of the coconut garden is needed. The disease can be effectively managed by imposing the above said integrated disease management strategies.

References

- Naik, R.G., 2001. Chemical control of basal stem rot of coconut. *Agricultural Science Digest* 21(4), 249.
- Snehalatharani, A., Chalapathi Rao, N.B.V., Ramanandam, G., Maheswarappa, H.P., Jose, C.T., Padma, E., 2016. Bio-control based integrated disease management of basal stem rot disease of coconut. *Journal of Plantation Crops* 44(1), 62-66.