

A NOTE ON THE "PSEUDO BUDROT" OF ARECANUT

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INTRODUCTION

A disease which was supposed to be spreading fairly fast in gardens round about Bhimasamudra area in Chitradurga taluk was reported and a detailed study of the



Young plant infected with "Pseudo Bud Rot"

zone proved the presence of a disease akin to "Budrot" in a few young gardens. This is usually restricted to young plants of about 3 to 5 years old and no older trees are seen to suffer from this. Only one case of an old tree being affected and subsequently recovering was reported and it may not be due to this. Subsequently, this was found in localised areas of Chikkanaikanahalli taluk also, especially near Godekere village. In all the other areas inspected throughout the maidan parts, it was neither observed nor reported.

REFERENCES

The "Budrot" of palms especially with reference to coconut has been investigated in detail. It was at first thought to be due to *pestolatia palmarum* (Busck 1901) and later to *Bacillus Coli* by various authors. E.F. Smith (1920) has stated that he had cultures of the organisms. But based on further work by Shaw and Sunder Raman (1914) Mc. Rae (1923) Tucker (1926) and Gadd (1927) and others, it was concluded that the typical "Budrot" of the palms were due to the fungus "*Phytophthora Palmivora*". This disease in a virulent form had also been

reported in Thirthahalli area for areca palms (Nambiar).

DESCRIPTION OF THE DISEASE.

The symptoms of the true "Budrot" are described as follows:—

"It affects generally plants of 15 to 45 years and starts with the paling, bending over and browning of the heart leaf, which can be drawn right out by a slight pull. The leaves of the surrounding whorl gradually lose their green lustre as the disease spreads and finally the outer leaves and spathes enclosing the central spindle fall off leaving



Longitudinal Section through a diseased seedling showing the spread of the disease.

only the old leaves standing for a few months. The soft infected portions will be completely rotten and degenerated to a slimy mass emitting a foul smell. The plant generally succumbs with the death of the

only vegetative bud". (Menon and Pandalai 1958). But this disease differs in many important points with the above. Only young palms of 3 to 5 years are affected and not the older trees. Secondly except for the central heart leaf, the other older leaves continue to be unaffected generally and in 99% of the cases mere removal of the affected portion with or without treatment helps in recovery of the plants. The bud even in cases where the plant was left standing for 6 months after the dead central leaf was noticed was found still unaffected since the spread of attack seems to be very slow. Hence it is different from the "Budrot" discussed above. Since, though it looks like "budrot" with all its usual symptoms, the bud remains unaffected and results in recovery of the plant if the affected parts are removed, it has been called as "PSEUDO BUDROT OF ARECA" for purposes of this discussion.

MATERIAL AND METHOD.

The typical symptoms are as follows:—
The young plants will appear generally healthy and normal but gradually the central heart leaf shows signs of yellowing and dries up finally. After this, one or two of the outer leaves may also show signs of yellowing due to attack of its inner tender portion but they do not die and all the other older leaves continue to look green and healthy. If the dried heart leaf is pulled, it comes out easily showing that its tender portions are completely putrified. A longitudinal section of the plant showed that the young emerged leaf and the ones surrounding them only are affected and putrified at the base, and the whole mass emitted a foul smell. The apical cell and the leaf buds and initial leaves in formation were, however, intact, the rot having confined only to the fully formed tender leaves at this stage. The stem was

healthy and free from all infection as was seen from its transverse section. In a few plants of 3 or 3½ months after the central leaf dying out, there is a slight fissure at the base of the oldest leaf or if all the leaves are removed away or cut, at the exposed area and a gummy exudation is formed which dries up forming a powdery encrustation and is blown away by the wind. The dry leaves are noticed usually after February. The exudation are noticed during July-August. Usually these affected plants are cut and removed by the ryots but where they have



An infected plant recovering normally after 2 years.

left it to stand in nearly 50% of the cases partial or complete recovery of the plant is noticed and it has continued to grow normally with only a slight constriction at the place of attack to show it. The entire attack is confined to plants of 3 to 5 years old and they are found distributed all over the garden.

Diseased and putrified parts of 7 plant were taken at different periods of the year and culture prepared from them in potato-dextrose-agar showed the growth of distinctive colonies of Bacteria. The colonies were of two types by colour - white and yellow - and they were found developing in the culture interspersed in separate masses. Both were found to be gram negative, rod shaped Bacillus types; (the culture and identification are under study). Though these cultures were preserved in plates for 4 months there was no development of any fungus and the uninfected portions of the growing regions of the infected plants had absolutely no fungus infection. Hence that it may be due to some fungus is ruled out. In all the specimens studied there was also no insect attack of any kind. As such, it supports the view that these bacteria may be the causative organism of the disease.

Since the growing portions inside were intact and also partial or complete recovery of these affected plants had been reported, experiments were conducted in the field in three ways—(1) the affected portions of the plant and all the leaves were removed leaving the unaffected tip of the plant completely bare, (2) the affected portions were removed cleaned and the tip dusted with Ceresan dry and (3) the affected plant was left as it is without removing or treating the infected portions. Three months later studies showed the following:—(i) all the 8 plants cleaned had recovered and young leaves were coming up but out of five plants thus attended to, two had reinfection, (ii) all the 8 plants treated with Ceresan were free from infection and were growing up, (iii) of the 8 plants only one was recovering and the tip growing up. Of the rest, in only 2 the apex had been affected necessitating in their

removal and the rest were slowly recovering. Based on this a general treatment was advocated to another garden so infected and 82 affected plants were cleaned by cutting off the affected portion and treating with 2% Ceresan dust (as Ceresan wet was not available at that time). 67 of the treated plants have shown complete recovery. Of the other 15 plants which died, on investigation it was



A treated Plant recovering

found that in 13 plants the apical bud also was cut by the ryots unwittingly while cleaning. Only two plants had died. Though the plants recover and grow up their development received a set back as its normal growth of one or two years are destroyed and the stem at that region shows a slight constriction for ever.

DISCUSSIONS

Based on these observations in the fields

made hitherto it looks as though the gummy exudations formed contain million of bacteria which when exposed to the sun form powdery encrustations and are blown all round by the heavy winds during July and August. Infection may be from the top. When these masses are blown into the top of the growing young plant and are washed down by rains in between the leaf sheathes, they begin multiplying by affecting the tender portions. If allowed to stand as it is even without removal, in many cases the plants have recovered and the buds continued to grow into normal plants, with only a constriction to show its effect probably due to a period of dormancy passed through by the bacteria. In order to prevent their spread 2% Ceresan wet is sprayed to all the young plants drenching the growing tips so that the liquid may penetrate into the space between leaves. Examination of young plants thus treated in December showed that they had no further attack of it and the spraying seems to be useful. Further investigations are being taken up.

SUMMARY AND CONCLUSION

1. A new disease akin to "Budrot" which may be treated as "Pseudo Budrot" is reported from a few localised areas of the maidan parts and only in young gardens below 3 to 5 years of age.

2. Detailed investigations showed that it was probably due to the action of two gram negative rod like bacilli which in culture develop into two separate and distinctive white and yellow colonies.

3. Infection appears to be due to their transmission by wind and further growth of these Bacilli by attacking the tender growing

portion of young leaves when they are washed down by rain into the leaf base.

4. Mere removal of the infected parts and cleaning it will help in recovery of the plant as normally the apical cell and the young unopened leaves are not affected.

5. Treating the cleaned parts with Ceresan wet or dry ensures recovery and prevention of reinfection whereas if kept untreated, there may be chances of reinfection.

6. The 'recovered' trees also show the bad effects of the attack as nearly one year's growth is destroyed and the young plant takes time to recover.

7. Hence in all such infected gardens treatment of all infected plants as stated in para 5 supra was advocated and spraying all the plants in the entire garden with 2% Ceresan wet solution in June just before the commencement of the monsoon and again

once a month regularly till November had a good effect in checking up their spread.

Further studies of its effect and life history and correct mode of infection etc., are being studied. My thanks are due to Shri Revappa, Agricultural Demonstrator, Chitradurga who first brought it to my notice and helped in the field observations and Dr. Govindu, M.Sc. (Agri), Ph.D., who prepared the cultures first.

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ARECANUT SEEDLINGS FOR SALE

About 70,000 areca seedlings of 1½ years of age are available for sale at the Regional Arecanut Research Station, Peechi. The seedlings are healthy and robust and are raised from selected mother palms from Pazhanji, Pengamuck, Kuma-ranellur and South Kanara. The seedlings may be taken delivery of from the station, which is at Kanara at the 10th milestone on the Trichur-Peechi road. The cost of seedlings is 13 nP., each exclusive of packing and forwarding charges.

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