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A New leaf spot Disease of *Cinnamomum tamala* in District Prayagraj

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Abstract: Cinnamomum tamala Nees & Eberm. is a moderate sized plant belonging to family Lauraceae. It is commonly known as Tezpat in hindi and also known as Indian Bay leaf. Its lanceolate , glabrous stalked green leaves are used as a spice. Indian Bay leaf is not only used as spice but the plant parts are also used in ayurvedic preparations and leaves also yield an essential oils. A new leaf spot disease was observed during the months of February which was marked by lesions on the leaves and it is the leaf only which is important for the culinary purpose.
Keywords: leaf spot disease, coelomycetes fungus, folicolus fungi

I. INTRODUCTION

During a survey of folicolous fungi,a new leaf spot disease of *Cinnamomum tamala* (fig1)was observed in the residential garden area of Allahabad (Prayagraj). The causal organism was identified as a Coelomycetes fungus *Phyllosticta sp*.(Gilman,1954)which caused infection and damage to leaves. As the host plant is of great economical value (Kocher, 2016) and the leaves of *C.tamla* are used for culinary and medicinal purpose therefore pathological investigations on the organism responsible for causing leaf spot was undertaken in the present study

II. MATERIALS AND METHODS

During the months of the February, a new leaf spot disease of Indian bay leaf was observed in the residential garden area of Allahabad District Prayagraj-UP. Infected leaves were collected in clean polythene bags, brought to the laboratory, washed with distilled water and then cleaned with 70% alcohol. Isolations were made on PDA Petriplates (potato= 200gm,Dextrose=20 gm, agaragar=20 gm).The pathogenicity of the causal organism was established only when Koch's postulates were fully satisfied (Spore suspension method)

III. SYMPTOMS OF THE LEAF SPOT DISEASE

Small red colored pustules appeared on the lower side of the leaf and the appearance of spots started from the base or from tip of leaf(fig 2). The infection initiated along the margins and extended towards the middle part of leaf. After few days of infections the entire leaf becomes covered with brownish red colored spots(fig3) which are discrete as well as coalescent and were sharply demarcated from green healthy tissue the leaf may eventually die and drop. Isolations from infected part yielded fungal growth on PDA medium.

IV. MORPHOLOGY OF THE PATHOGEN

Colour of the colony at first white(fig4), then changed to olivaceous grey on third or(fig5) fourth day. Finally it became jet black and reverse of the colony is also jet black. Nature of the colony is uniform and in circular pattern around the inoculum point. Extent of growth is good. It produces pycnidia which are of dark brown to black in colour. Isolations from the diseased area of leaf invariably yielded *Phyllosticta sp*. Which showed the morphological characters as- Hyphae thin, hyaline, septate and branched. Stromata often present and fructification or fruiting body is pycnidium (fig6). Peridium of pycnidium is membranous, black, globose and opening by a poer(fig 7). Conidiophore are very short simple and light brown in colour. Conidia are unicellular, thin and smooth walled, globose to ellipsoid(fig 8), enclosed in a mucilaginous sheath (Barnett and Hunter,1972) .Schoch et al (2006) placed *Phyllosticta* in Botryosphaeriales. The principal character by which this fungus is recognised as the hyaline conidia covered by a mucoid layer and bearing a single apical appendage(Vander Aa,1973). But according to Wikee etal,2013 mucoid layer and appendage is not necessarily a universal feature. And some species like *P.colocasiicola,P.minima,*and *P.sphaeropsoidea* lack these features.

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V. RESULT AND CONCLUSION

The organism under study was identified as *Phyllosticta sp* on the basis of morphological and pathological characters as well as the literature available. Leaf spot fungi have considerable importance as they not only reduce the photosynthetic area of the particular plant but they also cause severe disease which may lead to defoliation and ultimately results in the death of the plant. Many Phyllosticta species cause plant diseases such as leaf spots, leaf blotch, as well as lesions on various plants,this genus has wider host range(vander Aa & Vanev,2002).The genus *Phyllosticta* was introduced by Persoon(1818).Phoma and Phyllosticta are recognised as pycnidial fungi forming unicellular,hyaline conidia .Allesher (1898)separated the two genera based on the infected part of the plant part, *Phyllosticta* as foliar pathogen and *Phoma* on other plant parts. This concept was further refined by Groove (1935) who regarded *Phyllosticta* as a parasite and *Phoma* as saprobe or wound parasite .Seaver (1922)described many species on the basis of host plant .The present investigation includes morphological and pathological studies only hence species cannot be identified.

VI. ACKNOWLEDGEMENT

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Fig.1 Healthy plant of *Cinnamomum tamala*

Fig.2 Lower side of infected leaf showing red postules

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Fig.3 infected plant in later stage

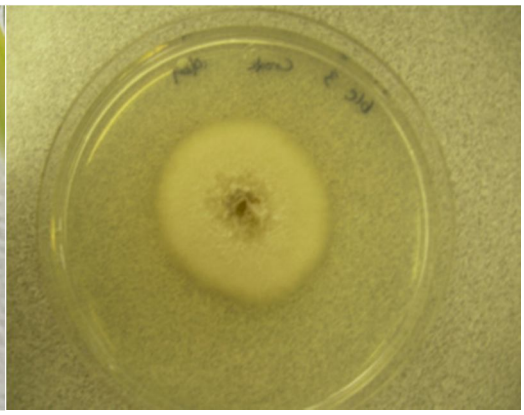

Fig.4 Colony of pathogen 3 days old

Fig.5 Colony of pathogen 6 days old

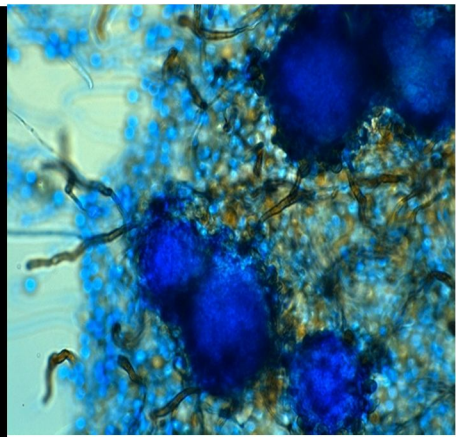

Fig.6 Microphotograph of pycnidia

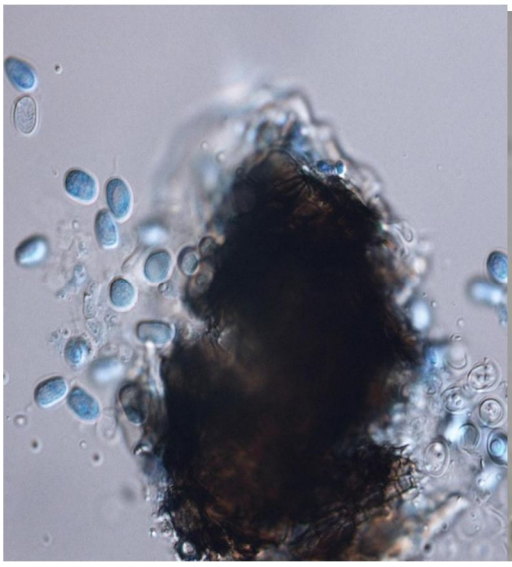

Fig.7 Microphotograph showing opening of pycnidium

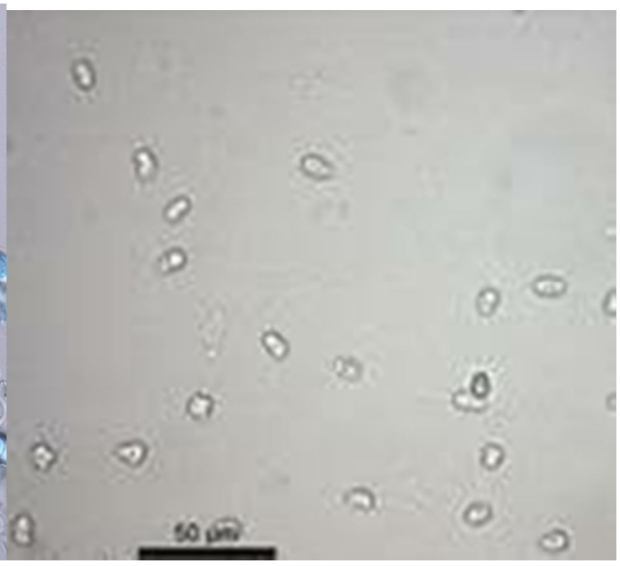

Fig.8 Microphotograph of conidia

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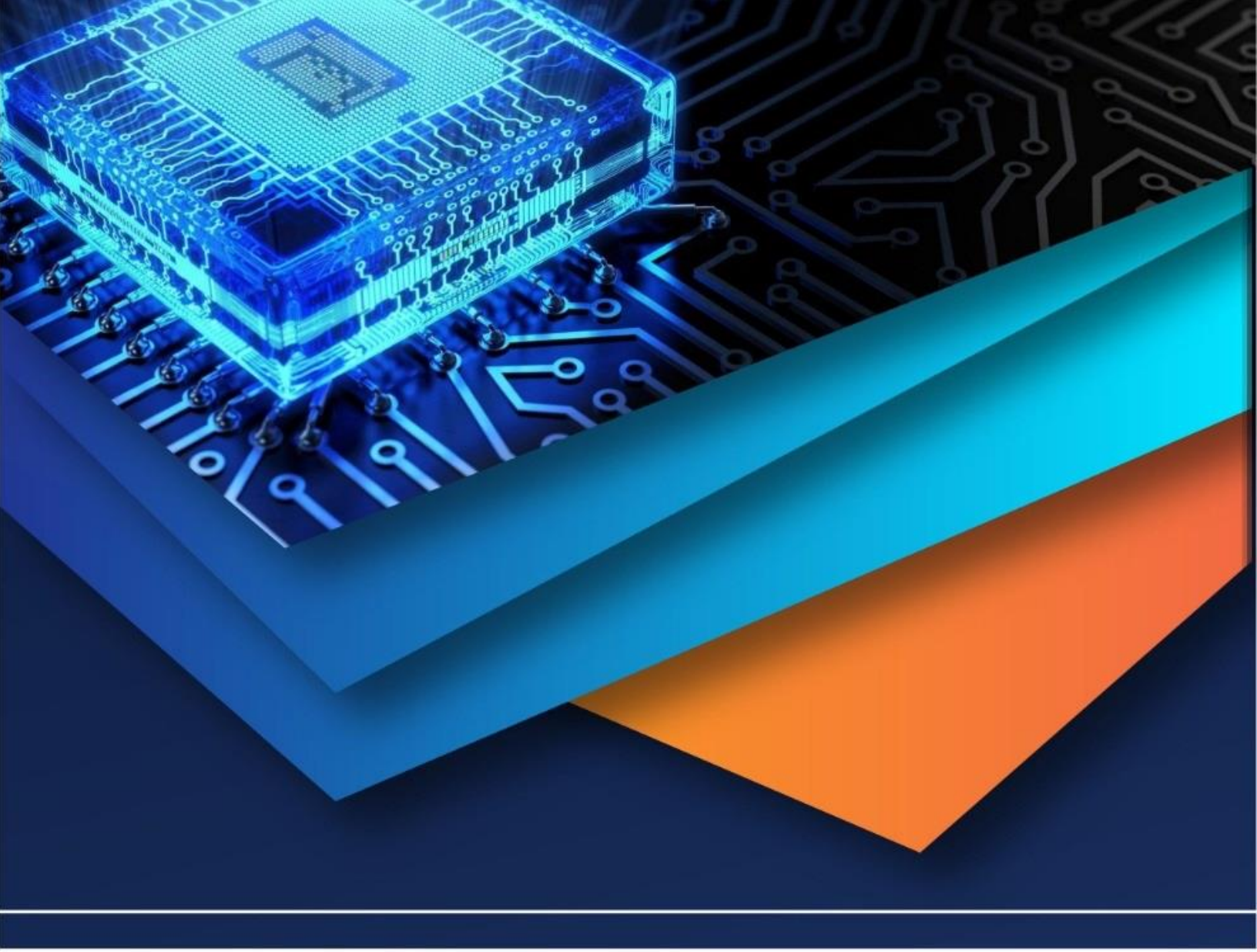

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