

Report of Leaf Blight of *Lagerstroemia speciosa* by *Colletotrichum gloeosporioides* from Odisha, India

MIHIRA KUMARA MISHRA* AND BANANJAYA BEHERA

Department of Plant Pathology, College of Agriculture, Orissa University of Agriculture and Technology (OUAT),
Bhubaneswar, Odisha, 751003

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Lagerstroemia speciosa (L.)Pers. (Syn. *L. microcarpa* Wall., *L. flos-reginae* Retz.) is grown in South East Asia, Philippines and India. Widely it is cultivated as an ornamental tree plant in tropical and sub-tropical area. In India it is commonly known as "Pride of India" with purple colour attractive flower. A survey was conducted in different parts of Odisha state on the incidence of different foliar diseases of *Lagerstroemia speciosa* during kharif, 2012. Leaf blight of *Lagerstroemia speciosa* was found in Bhubaneswar causing much damage in foliage during August, 2012. Dull white to straw colour necrotic patches developed in the lower surface of leaf which enlarged and covered the entire leaf lamina leading to premature defoliation. Pure culture of the test fungus was made which showed diffirese to black colour after sporulation. In potato dextrose agar culture plates the fungal mycelia were dense, narrow and sparsely septate. The hyphae were dull whitish in plate, but later turned to slightly dark colour. Acervuli were formed in the culture. The conidia in mass were dark pinkish, but hyaline to dark individually. The shape of conidia were cylindrically oval, slightly larger in shape, oblong with rounded ends, aseptite measuring 6.19-7.67 µm in length with 1-2 globules and identified as *Colletotrichum gloeosporioides*. Pathogenicity of the causal pathogen was proved by foliar inoculation and the symptoms were evident one month after inoculation, but necrotic patches developed after two months.

Key words: *Colletotrichum gloeosporioides*, *Lagerstroemia speciosa*, Leaf blight, Odisha

Lagerstroemia speciosa (L.)Pers. (Syn. *L. microcarpa* Wall., *L. flos-reginae* Retz.) in Lythraceae family is grown in South East Asia, India and the Philippines. It is widely cultivated as an ornamental tree plant in tropical and sub-tropical area. In India it is commonly known as "Pride of India". It is a shrub to large tree with multiple trunks. Flowers, purple in colour are very attractive and are produced in clusters at the tip of the branches and create an attractive shot of colour amongst green foliage (Fig. 1 & 2). This tree has long history of folkloric medical application in Philippines that includes blood pressure control, urinary dysfunctions (help ease urination), cholesterol level control, treatment of diarrhoea, facilitate bowel

movement, diabetics, and as an analgesic. The leaf extract contains primary active ingredient 'corosolic acid' and other synergists lager-stroemin, Flosin B and Reginin A ([http://en.wikipedia.org/wiki/Lagerstroemia speciosa](http://en.wikipedia.org/wiki/Lagerstroemia_speciosa)). Leaves are also used as tea widely in Taiwan, Japan and Philippines. In India, the fruits are used to cure mouth ulcers, glucose uptake in a dose dependent manner in similar ways to insulin (Liu *et al*, 2001). The wood is used as rail road sleepers and construction of furniture and resistant to water logging as it has heavily lignified cell wall (Choudhury *et al*, 1967).

The tree is attacked by a number of foliar pathogens like *Alternaria tenuisima*, *Cercospora lythracearum*, *Ciliochorella mangiferae*, *Haplosporella lagerstromiae* and *Pestalotia*

*mkmpathology@yahoo.com



Fig 1 : Healthy plant of *Lagerstroemia speciosa* (Pride of India)



Fig 2 : Healthy leaf



Fig 3 : Naturally infected leaf with *Colletotrichum gloeosporioides*



Fig 4 : Ten days old culture of *Colletotrichum gloeosporioides*



Fig 5 : Conidia of *Colletotrichum gloeosporioides* (100X)



Fig 6 : Lesion after two months of artificial inoculation

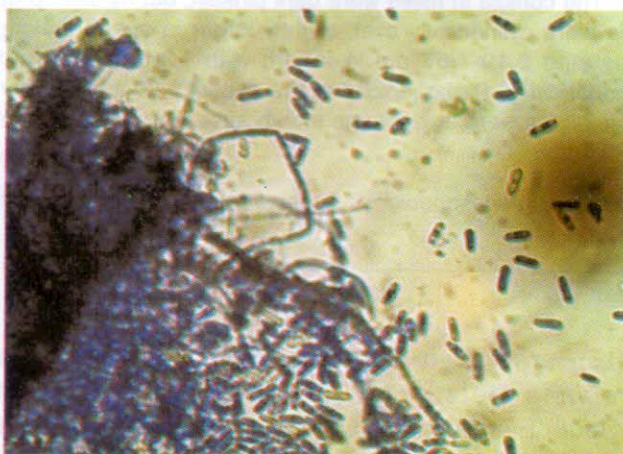


Fig 7 : Conidia with conidiophores of *Colletotrichum gloeosporioides* (40X)

largerstromiae etc (Madhumeeta and Jindal, 1994). Mhaikar (1969) and Murali *et al* (2007) reported *Colletotrichum gloeosporioides* infection from the foliage of *Lagerstroemia speciosa* from southern parts of India. A survey was conducted within the premises of College of Agriculture, Bhubaneswar and also nearby places in the month of August, 2012 for a severe foliar disease in *Lagerstroemia speciosa*. Majority of the foliage were attacked and there was production of dull white to straw colour necrotic patches enlarged in size and cover larger

portion of leaf lamina (Fig. 3). The infected leaf samples were collected from the affected trees, kept in polythene bags and stored in refrigerator until isolation. Small pieces of infected leaves were surface sterilized with 0.1% mercuric chloride and put directly on potato dextrose agar (PDA) slants, Petriplates and also in sterile moist chambers. Pure culture was prepared by transferring hyphal tips to PDA medium and maintained at 4°C in PDA slants. Colonies on PDA were white initially and becoming diffuse to blakish after sporulation. Mycelial

growth covered the periphery of Petriplate after seven days of inoculation (Fig. 4). Mycelium in culture plates were dense, narrow, sparsely septate, hyphae were dull whitish in plate, but later turned to slightly dark colour. Acervuli were formed in the culture. The conidia in mass were dark pinkish, but hyphae to dark individually. The shape of conidia were cylindrically oval, slightly larger in shape, oblong with rounded ends, aseptate measuring 6.19-7.67 µm in length with 1-2 globules (Figs. 5 & 7). The pure cultures of the fungus were sent for identification to Indian Type Culture Collection (ITCC), Division of Plant Pathology, Indian Agricultural Research Institute (IARI), New Delhi and was identified as *Colletotrichum gloeosporioides* (I.D. No. 8891.12).

The causal pathogen was multiplied in PDA and spore suspension was prepared in sterile water from 10 days old culture. Fresh tender to medium aged intact leaves (10 no.) in the lower branches of *Lagerstroemia speciosa* tree were selected for artificial inoculation. These leaves were surface sterilized by rectified spirit thoroughly before inoculation. The leaves were inoculated by swabbing with cotton swab dipped in spore suspension in pin prick method. Control leaves were also inoculated by sterile water without spore suspension by same method. Each leaf was covered in polythene containing a cotton swab soaked in sterile water and tied. Symptoms developed after one month of in-

oculation, but prominent spot and necrotic patch developed after two months (Fig. 6). Same fungus was isolated upon re-isolation. Though the pathogen *Colletotrichum gloeosporioides* was reported earlier from South India by Mhaiskar (1969), it was first isolated and known to cause foliar disease of *Lagerstroemia speciosa* in Odisha.

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