

NEW REPORT OF A PHYTOPLASMA OCCURRING IN *LAGERSTROEMIA SPECIOSA* (L.) PERS., FROM INDIA

ASHIRWAD TRIPATHY

Entomology Branch, Forest Protection Division, Forest Research Institute, P.O. New Forest, Dehradun, Uttarakhand 248006, India.

Corresponding email: ashirwadresearch101@gmail.com

Reviewer: Peter Smetacek

Lagerstroemia speciosa is commonly called Crepe myrtle or Pride of India, belonging to the Lythraceae family. The Lythraceae consists of about 24 genera and nearly 500 species found across the temperate regions. In India, it is represented by about 45 species belonging to 11 genera. *L. speciosa* is widely distributed in the Philippines, India, and Malaysia (Koduru & Babu, 2017).

The tree is small to medium-sized, growing up to 20m with smooth flaky bark. It is deciduous, with leaves having an elliptic blade, obtuse-acuminate apex, rounded base, and entire margin. The flowers produce 20-40cm panicles with six purple petals 2-3.5 cm long. It flowers in summer.

Lagerstroemia speciosa is not prone to diseases or pests of major concern. However, the tree is affected by *Tinocallis kahawaluokalani* Kirkaldy (Homoptera: Aphididae), which causes black sooty mold (Tripathy & Dash, 2020).

Phytoplasmas are cell wall-less bacterial pathogens, which inhabit the plant phloem and insects. Their hosts include crops, fruit trees, ornamentals, and weeds (Bertaccini *et al.*, 2014). Phytoplasma-infected plants showed many typical symptoms, such as witches'-broom, flower virescence, phyllody, bushy top, and so on. Up to now, most of the identified phytoplasmas

have been classified into 34 groups and more than 40 subgroups according to the RFLP patterns of the 16S rDNA gene (Bertaccini *et al.*, 2014). Phytoplasma infection is only reported in *Punica granatum* L. of the Lythraceae family (Gazel *et al.*, 2015; Salehi *et al.*, 2016). The present report is about the infestation of a Phytoplasma species in *Lagerstroemia speciosa*, the first taian tree species from India.

The observations were taken from the plant sample present near the Gymnasium (20. 263419N, 85.811420E), College of Forestry, Orissa University of Agriculture and Technology, Bhubaneswar, Odisha, India on 29 November 2016. The infected twigs were broken into small pieces and then taken to the Pathology Department, College of Agriculture, OUAT, Bhubaneswar, to identify the pathogen. The plant was identified as *Lagerstroemia speciosa* by Mr. Saswat Nayak, Asst. Professor in College of Forestry, OUAT, Bhubaneswar.

The plant was found to have stunted growth, in which every node of the stem and branch had a cluster of vegetative outgrowths similar to witches' broom disease. The lower portion of the plant had regular-shaped leaves. However, as we move up from the ground level, the leaf size reduced and finally, above 20 cm from the ground level, the leaves became

spike-like structures. Within these spike-like structures, some grassy appearances of leaves were found. The base of the infected plant was found to have root suckers with normal shaped leaves as an elliptic blade, obtuse- acuminate apex, rounded base and entire margin (Fig 1).

Therefore, this was a new record of Phytoplasma infestation in *Lagerstroemia speciosa* from India. Further studies are needed for the proper identification and preservation of this pathogen.

REFERENCES

- Bertaccini, A., B. Duduk, S. Paltrinieri & N. Contaldo. 2014. Phytoplasmas and phytoplasma diseases: a severe threat to agriculture. *American Journal of Plant Sciences* 5: 1763-1788.
- Gazel, M., K. Caglayan, H. Başpınar, J. Mejia, S. Paltrinieri, A. Bertaccini, & N. Contaldo. 2015. Detection and Identification of Phytoplasmas in Pomegranate Trees with Yellows Symptoms. *Journal of Phytopathology* 164. 10.1111/jph.12401.
- Koduru, R. L., P.S. Babu, I.V. Varma, G.G. Kalyani & P. Nirmala. 2017. A review on *Lagerstroemia speciosa*. *International Journal of Pharmaceutical Sciences and Research* 8(11): 4540-4545.
- Salehi, M., S.A.E. Hosseini, R. Rasoul, E. Salehi & A. Bertaccini. 2016. Identification of a phytoplasma associated with pomegranate little leaf disease in Iran. *Crop Protection* 87: 50-54. 10.1016/j.cropro.2016.04.007.
- Tripathy, A. & S. Dash. 2020. First report of *Tinocallis kahawaluokalani* Kirkaldy (Homoptera: Aphididae) infesting *Lagerstroemia speciosa* (L.) Pers. (Lythraceae) from Odisha and Jharkhand, India. *Journal of Entomology and Zoology Studies* 8(1): 449-451.



Fig 1: Showing Phytoplasma infestation in *Lagerstroemia speciosa*