



Phytophthora Leaf Blight Caused by *Phytophthora nicotianae* on Natal Mahogany *Trichilia dregeana*

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Water soaked leaf spots were observed on Natal Mahogany, *Trichilia dregeana* Harv. & Sound at a south Florida Nursery in the summer. The leaf spots were affecting 5% to 8% of the nursery stock and caused severe cosmetic damage to the crop. The actively expanding leaf spots were necrotic and water soaked. A species of *Phytophthora* was isolated on modified rye seed agar (RSA) by the Division of Plant Industry and determined to be *Phytophthora nicotine* van Breda de Hann. The *Phytophthora nicotine* spot of Natal Mahogany, *Trichilia dregeana* is typified by black lesions. Ten uninfected leaves of *T. dregeana* were placed in each of two plastic boxes lined with damp paper towels (incubation chambers ICBC). Five leaves were treated as controls and the other five were inoculated. Leaves misted with water prior to inoculation. Control leaves were inoculated with one, three-millimeter square (3 mm²) of uninoculated RSA. Treated leaves were inoculated with 3-mm squares of seven-day old cultures of the *P. nicotianae* on RSA. Leaves were misted again, covered and incubated in the ICBC at 25 °C (77 °F). After six days, all of the inoculated leaves that were showing actively expanding leaf spots were necrotic and water soaked. *Phytophthora nicotine* was reisolated from the inoculated leaves thus proving Koch's Postulates.

The ornamental plant industry, comprising of decorative plants, shrubs, bushes, and trees is the single largest segment of Miami-Dade County's agricultural industry.

The host plant Natal Mahogany, *Trichilia dregeana* (Fig. 1), in the *Meliaceae* family, was not listed in the *Index of Plant Diseases in Florida* (Alfieri et. al., 1984) nor in the *Fungi on Plants and Plant Products in the United States* (Farr et. al., 1952). Natal Mahogany is grown as an interior scape, with dark green compound leaves, and can grow to heights of 2–4 ft tall or more. It grows well in the tropical areas of the new world and can attain heights of 20 ft or more in landscape settings but is sensitive to frost and not suitable as a landscape tree. (Van Wyk and Van Wyk, 1997). At present, only one nursery in Homestead, FL is known to grow the Natal Mahogany for the interior scape market. The purpose of this paper is to determine the cause of the leaf spot on Natal Mahogany at a Miami–Dade Nursery.

Materials and Methods

Phytophthora spp. was isolated on modified rye seed agar (RSA) by the Division of Plant Industry and determined to be *Phytophthora nicotine* van Breda de Hann. Ten uninfected leaves of *T. dregeana* were placed in each of two plastic boxes lined with damp paper towels (incubation chambers ICBC). Five leaves were treated as controls and the other five were inoculated. Leaves were misted with water prior to inoculation. Control leaves were inoculated with one, 3 mm square of uninoculated

RSA. Treated leaves were inoculated with 3 mm square of seven-day-old cultures of the *P. nicotianae* on RSA. Leaves were then misted again, covered and incubated in the ICBC at 25 °C (77 °F). To confirm that the fungal isolate from the leaf spot on the *T. dregeana* was the same fungus from the nursery, an isolation was made from the inoculated leaves.



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Fig. 1. Host plant, Natal Mahogany, *Trichilia dregeana* Harv. & Sound.



Fig. 2. Inoculated Natal Mahogany leaf showing black necrotic lesions from *Phytophthora nicotianae* infection.

Results and Discussion

After six days, all of the inoculated *T. dregeana* leaves were showing actively expanding leaf spots that were necrotic and water soaked (Fig. 2). After six days, all of the inoculated leaves were showing actively expanding leaf spots that were necrotic and water soaked. *Phytophthora nicotinae* was reisolated from the inoculated leaves thus proving Koch's Postulates and showing *Phytophthora nicotinae* was the infective agent.

Literature Cited

- Alfieri, S.A., Jr., K.R. Langdon, C. Wehlburg, and J.W. Kimbrough. 1984. Index of plant diseases in Florida. Bul. 11, Revised 1984.
- Farr, D.F., G.F. Bills, G.P. Chamuris, and A.Y. Rossman. 1952. Fungi on plants and plant products in the United States. APS Press, Amer. Phytopathol. Soc. St. Paul, MN. 1252 pp.
- Van Wyk, B. and P. Van Wyk. 1997. Field guide to trees of Southern Africa. Struik Publishers, Cape Town, South Africa.