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NECTRIA CANKERS OF SWIETENIA SPP.

E. L. Barnard[1]

Swietenia is a small genus in the mahogany family (Meliaceae) with perhaps 5-6 species scattered through the forests of Mexico, Central America, northern South America, extreme southern Florida (including the Florida Keys), the Bahamas, Cuba, Jamaica, and Hispaniola (7,9,10). The two most common species, S. macrophylla King and S. mahagoni Jacq., are prized for their desirable wood qualities, silvicultural adaptability, and utility as landscape and ornamental specimens and have been widely planted in many tropical areas including Puerto Rico, the Virgin Islands, India, and Sri Lanka. In Florida, where only S. mahagoni is native, specimens of marketable size occur rarely if at all due to historically short-sighted timber harvesting practices, and the species is used primarily for landscape and ornamental purposes.

Gibson (7) provides an annotated listing of diseases affecting the genus Swietenia, and Alfieri et al. (1) list several plant pathogenic fungi known to occur on S. mahagoni in Florida. Detailed studies have been few, however, and relatively little is known regarding the pathology of Swietenia spp. Potentially important among diseases of mahogany are cankers caused by Nectria spp. Nectria cankers are common on hardwood species in Europe and North America and have been reported in relatively recent years on S. macrophylla and S. mahagoni in Taiwan (6,11) and S. macrophylla in Puerto Rico (4). Chen (6) described N. swieteniae-mahoganii sp. nov. as the causal agent of cankers on S. mahagoni in Taiwan. In Puerto Rico, however, the fungus associated with cankers on S. macrophylla (4) has been tentatively identified as N. haematococca Berk. & Br., based on limited evaluations of its Fusarium solani (Mart.) Sacc. anamorph (D. Farr., personal communication). More recently, Barnard et al. (3) reported the occurrence and pathogenicity of N. salligena on S. mahagoni in Florida. The frequency of occurrence, extent of distribution, and level of damage caused by N. galligena on mahogany in Florida is unknown.

RECOGNITION OF THE DISEASE. Barry and Anderson (4) described Nectria infections on S. macrophylla as "basal cankers with associated sap flow". Chen (6) described Nectria infections on the bark of trunks, twigs and exposed roots of Swietenia spp. as "cankered, flesh-colored becoming chocolate-brown, with callus sometimes girdling limbs and accompanied with sapwood splitting in severe cases." In Florida, N. galligena has been typically observed on S. mahagoni in association with areas of sometimes darkened, hypertrophied, roughened, and fissured bark in branch axils of affected trees ("crotch cankers"? - Fig. 1). On one occasion the fungus was observed on roughened, fissured bark tissues at the juncture of a major root and the root collar of a large ornamental tree (Fig. 2). Close examination of fissured bark tissues frequently reveals the tiny (<1mm), spherical, red-orange fruiting bodies (perithecia) of the pathogen. Fruiting bodies occur singly or in clusters (Fig. 3).

Fig. 1. Hypertrophied, roughened, and fissured bark associated with Nectria ggalligena in branch axils of Swietenia mahagoni. A) Moderate and more or less "typical". B) Severe. (DPI Photo Nos. 703044-B-6 and 703044-B-X).

[1]Forest Pathologist, Divisions of Forestry & Plant Industry, Fla. Dept. Agric. & Consumer Services, P.O. Box 1269, Gainesville, FL 32602.

Fig. 2. Hypertrophied, roughened, and fissured bark (arrow) associated with Nectria galligena at root collar of Swietenia mahagoni. (DPI Photo No. 703044-B-11).

Fig. 3. Perithecia of Nectria galligena on bark (arrow) of Swietenia mahagoni (DPI Photo No. 701945-13, 22.4X).

INFECTION BIOLOGY. Research on Nectria cankers of mahogany is lacking and little is known regarding specific infection processes, etc. However, it is reasonable to assume that infections occur largely through mechanical and/or insect wounds (2,5,8). According to Grant and Spaulding (8), branch axils serve as prime infection sites due to the occurrence of relatively deep-fissured bark and the tendency for bark splitting at these junctures. They also report that infections occur largely through live or dying tissues as opposed to dead branch stubs.

CONTROL. In the absence of specific and proven control measures, the following guidelines may be helpful. Remove and destroy affected material, i.e., trees in forest stands and branches in individual ornamental trees. Provide optimal growing conditions and minimize injuries which may serve as infection loci.

SURVEY AND DETECTION. Look for cankers, sapflow, and hypertrophied, roughened and fissured bark, especially in branch axils. Nectria spp. can be confirmed in many cases by the occurrence of tiny (<lmm), spherical, red-orange fruiting bodies (perithecia) on or within fissures of affected bark tissues. Fruiting bodies are best detected with the aid of a hand lens.

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