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Tubakia Leaf Spot

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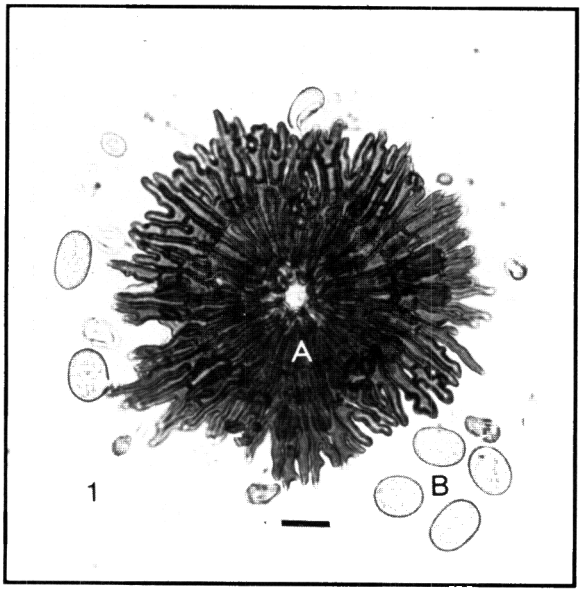
INTRODUCTION: *Tubakia dryina* (Sacc.) Sutton is a common leaf spotting fungus which affects oak (*Quercus* spp.) and many other tree species (1, 2, 3, 4). This distinct and unusual fungus is widespread in the Eastern United States (4) and is frequently encountered on necrotic leaf tissues in Florida.

SYMPTOMS: The tan to dark reddish brown leaf spots are 1-15 mm in diameter, circular to irregular in outline and may coalesce to form larger necrotic areas. If the leaves are still expanding at the time of infection some leaf deformity may occur. Blighting and defoliation have been reported under optimum conditions (4). The fruiting structures of this fungus, which appear as very small (0.1 mm) black specks, form on the necrotic tissues on either or both leaf surfaces. *Tubakia dryina* can often be found in combination with other foliar pathogens or injury.

PATHOGEN: The most striking feature of *Tubakia dryina* [syn. *Actinopelte dryina* (Sacc.) Hoehnel] is the pycnothyrium. This unique asexual fruiting structure (conidioma) resembles a shield born on a short stalk above



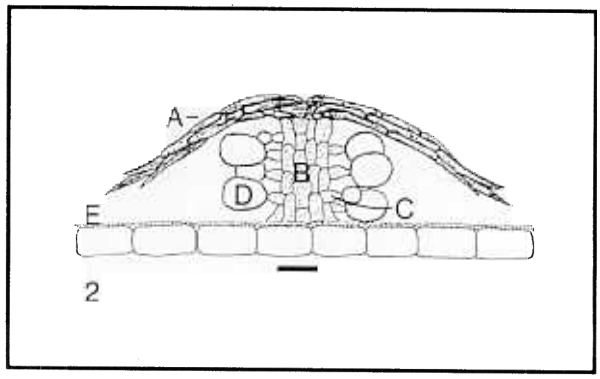


Figure 1- 2. 1) A surface view of *Tubakia dyrina*. Note the radiate pattern of the thick walled hyphae and the pointed hyphal tips. A) scutellum, B) conidia. 2)*Tubakia dryina*. This figure illustrates the key features of the pycnothyrium. A) scutellum, B) columella, C) conidiophore, D) conidium, E) leaf surface. (Bar = 10 µm).

the host tissue. This conidioma consists of a circular scutellum (shield) attached to the leaf by a central columella (stalk) (2). The scutellum is composed of brown, thick walled hyphae which radiate out from a central point. The branching hyphae have acutely pointed tips which form a fringe around the edge of the 70-120 µm diameter scutellum (Fig. 1). The central columella is several cells wide. The conidiogenous cells radiate outward from the columella, bearing the conidia beneath the scutellum (Fig. 2). The hyaline conidia are ovoid in shape 8-14 X 6-10 µm (Fig. 1). The conidia may form a densely packed mass beneath and surrounding the conidioma.

DISEASE INFORMATION: *Tubakia dryina* has been identified on a number of host genera in Florida: *Acer, Castanea, Liquidambar, Photinia, Quercus, Sassafras, Ulmus* (1). While the fungus has long been associated with

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leaf spots on oak and other trees (3) its pathogenicity has not been verified in all cases. Recent inoculation studies (4) have confirmed its role as a primary foliar pathogen of oak species. Since it is often observed in combination with other foliar pathogens, or on injured and stressed tissues, *T. dryina* appears to also be an aggressive secondary colonist.

CONTROL: In nurseries, some control of Tubakia leaf spot may be achieved by minimizing the periods of leaf wetness by altering irrigation schedules or equipment. Current chemical control recommendations can be obtained from the local County Cooperative Extension Service.

SURVEY AND DETECTION: Detection of *T. dryina* will require the use of a hand lens at minimum. Examine the necrotic leaf tissues for the very small pycnothyria. Since they are superficial in nature and are attached to the leaf tissues by the fragile columella, the black fruiting bodies are easily scraped off from the tissues. To verify, however, a compound microscope will be required to see the key features of this unique and striking fungus.

LITERATURE CITED

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