UofA UNIVERSITY OF ARKANSAS DIVISION OF AGRICULTURE
Cooperative Extension Service

Agriculture and Natural Resources

FSA7557

Hypoxylon Canker of Hardwood Shade Trees

Stephen Vann
Assistant Professor -
Urban Plant Pathologist

Introduction

Hypoxylon canker is a common disease of oaks in Arkansas that can affect several species of shade trees. Oak is the most susceptible, but sycamore and elm are affected also. This disease is caused predominantly by the fungi *Hypoxylon tinctor* and *Hypoxylon atropunctatum*. These fungi are not considered aggressive "killers" but instead take advantage of stressed or declining hardwood trees. Infected trees can be in various habitats, including recent or well-established residential areas and forest trees.

Canker diseases can reduce tree growth, result in wind breakage and weaken trees. These trees often become more susceptible to attack by secondary wood-rotting fungi and insects.

Symptoms

Most damage occurs on stressed or injured trees. Cankers are usually localized dead areas in the bark of the stems or twigs and are often recognized as a sunken, dead area. Sometimes, the healthy tissue immediately adjacent to the canker may thicken and appear higher than the normal surface of the tree. This callus formation around the diseased area helps limit disease expansion. However, under humid weather conditions, cankers can rapidly enlarge to lengths greater than 3 feet. The fungus usually kills the cambium and portions of the sapwood, creating a potential for breakage. If cankers girdle the branch, the branch will die. Lack of vigor predisposes trees to infection. Infections occur through branch stubs and other wounds. The gray or black canker areas often become quite obvious during November and December after the trees normally drop their leaves (Figure 1). The bark usually sloughs off, often near the trunk or major branches, revealing the fungal mat beneath.

Figure 1. Gray canker of Hypoxylon on oak during winter

Disease Cycle

Tree infection may occur as early as the seedling stage but goes unrecognized until the tree becomes stressed. Bark often sloughs off in the affected trunk or branch areas, revealing a thin, powdery, greenish

Figure 2. Black stroma of Hypoxylon on American sycamore

brown to gray "velvety" cushion or mat (stroma) beneath. This cushion is made up of fungal reproductive structures and becomes visible in the spring and early summer. This mat will release clouds of spores (conidia) when disturbed. By summer or fall, the stromata become crust-like and turn bluish-gray to black, giving them a "charcoal" look (Figures 2 and 3). Stromata often become visible several months after the underlying tissues die and are the most obvious signs of the disease. Splashing water and wind spread the spores of the fungus to healthy trees.

Management

There is no cure for this disease, but stress avoidance is the most effective management strategy. The key ingredient to canker-free trees is prevention. It is important to avoid tree wounds. Construction injury, herbicide damage and site-related stresses (drought, etc.) contribute to disease onset. Homeowners need to promote vigorous plant growth by correct fertilization and irrigation. Fertilization should be based on a recent soil test. If practical, selective pruning should be done to remove dead or damaged branches from the tree. This may help slow the advance of the fungus. Tree removal may become necessary if structural integrity becomes questionable, especially if the tree poses a threat to structures or people. Homeowners should monitor canopy status and overall vigor. In urban areas, tree health may need to be evaluated by a trained professional in order for the tree to be maintained properly.

Figure 3. Hypoxylon stroma on oak (photo courtesy James Robbins, University of Arkansas)

Printed by University of Arkansas Cooperative Extension Service Printing Services.

DR. STEPHEN VANN is an assistant professor - urban plant pathologist with the University of Arkansas Division of Agriculture, Cooperative Extension Service, Little Rock.

FSA7557-PD-7-07N