RESEARCH LABORATORY TECHNICAL REPORT

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Sooty Bark Disease

Megan McConnell, MS, Plant Diagnostician

Sooty bark disease (SBD) causes wilting, dieback, and death of various maple species in North America. This disease is caused by the fungus *Cryptostroma corticale*, first described in London, Ontario in 1889 [1]. Genetic studies suggest that the disease agent, or pathogen, that causes SBD is closely related to the one that causes Hypoxylon canker [2]. In addition to infecting living trees, *C. corticale* can exist as a decay agent, or saprophyte, on maple logs. It has recently been detected on several tree species in the Seattle, Washington area [3]. The role of *C. corticale* in the death of the trees in Seattle is not known at this time, however.

Range and Hosts

In the US, the SBD pathogen has been identified in Colorado, the Great Lakes region, and Washington State. It is also present in southern Ontario, Canada and in Europe (1).

SBD most severely affects sycamore maple (*Acer pseudoplatanus*), but also infects field maple (*A. campestre*), Norway maple (*A. platanoides*), box-elder (*A. negundo*), red maple (*A. rubrum*), and big-leaf maple (*A. macrophyllum*) [3], [4]. A 1951 journal article reports the fungus on hickories (*Carya* sp.) and lindens (*Tilia* sp.) [3].

Figure 1: Dead sycamore maple
Photo credit: Sterling Malcomson, Bartlett Tree Experts

Figure 2: *C. corticale* erupting through dead bark on a sycamore maple trunk
Photo credit: Sterling Malcomson, Bartlett Tree Experts

Susceptibility

Stressed trees, especially those weakened by drought and high temperatures, are predisposed to infection by the SBD pathogen [2]. High temperatures will also cause the pathogen to spread more rapidly within infected wood [3].

Symptoms and Disease Process

Wilting of several branches or the entire canopy can indicate infection, though wilting does not always occur with SBD. Live, wilting branches may exhibit yellow/greenish staining in the wood under the bark;

this staining quickly fades once the tissue has died [4]. The fungus is thought to infect through smaller branches and then grow into the main trunk, causing decline and death (Figure 1). As the fungus grows within the tree, it causes the bark to blister and crack. This damaged bark is pushed from the trunk by the fungus, exposing black patches of the pathogen tissue beneath (Figure 2). This fungal tissue releases trillions of spores into the surrounding environment. In the later stages of tree decline and death, these dark lesions on the trunk are the most reliable indicator of SBD (Figure 3) [5].

Figure 3: Close-up of *C. corticale* erupting through dead bark on a sycamore maple trunk
Photo credit: Sterling Malcomson, Bartlett Tree Experts

Management

There are no chemical management strategies available for SBD. Provide good cultural care by applying mulch 2-4" deep around the base of the tree while keeping the root collar exposed, irrigating during drought, and fertilizing according to a soil analysis. Avoid wounding trees, if possible.

Note: Sooty bark disease is associated with respiratory irritation and illness. The excessive number of spores produced by infected trees may be inhaled during tree-related activities, so take appropriate safety precautions when handling infected tissue. Please contact your Bartlett Arborist Representative to learn about management strategies.

Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. Scientists here develop guidelines for all of the Company's services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.

References

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[3] James Worrall, "Sooty-Bark Disease of Maple," *Forest Pathology*. https://forestpathology.org/canker/sooty-bark-maple/ (accessed Jan. 21, 2021).

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[5] P. H. Gregory and S. Waller, "Cryptostroma corticale and sooty bark disease of sycamore (Acer pseudoplatanus)," *Transactions of the British Mycological Society*, vol. 34, no. 4, pp. 579-IN10, Jan. 1951, doi: 10.1016/S0007-1536(51)80043-3.