

TAR SPOT OF LIVE OAK

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Live oak (Quercus virginiana Mill.), and several of its varieties, also known as southern live oak (5), belongs to the family Fagaceae. It is considered an evergreen tree because many leaves persist from one season to the next (7). An ornamental shade tree, live oak may grow up to 75 feet tall (3,4). It has a trunk that divides within a few feet of the ground and branches that spread horizontally (3). The bark is black, hard, and with deep rough furrows (7). A mature tree has an open, spreading but irregular crown with a span of up to 150 feet, with massive branches and a stout trunk up to 7 feet in diameter (4). Live oak (especially the sand live oak Q. virginiana var. geminata (Small) Sarg. which is common in Florida) sprouts abundantly from the root collar or underground creeping stems and tends to form thickets around the base of the parent tree (4,7).

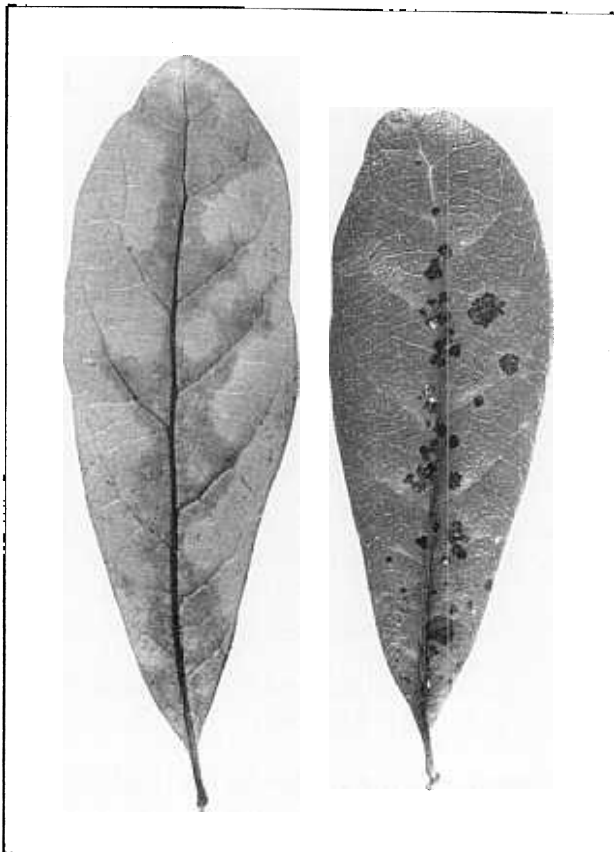


Fig. 1. Tar spot disease on upper (right) and lower (left) surfaces of leaves. (DPI Photo #87009-37 by Jeffrey W. Lotz).

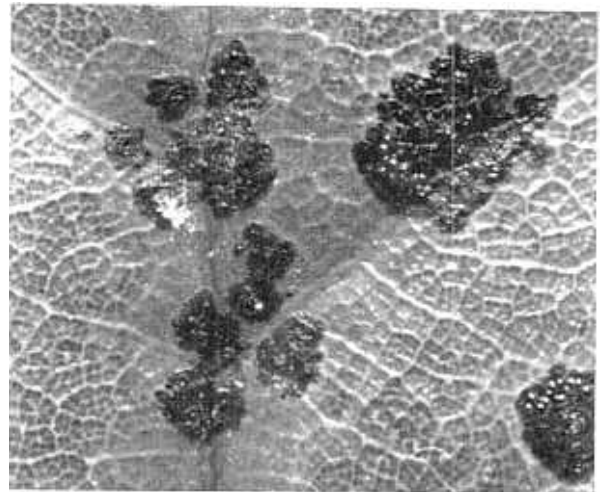


Fig. 2. Magnified view of the tar-like black fungal structures called stromata. (DPI Photo #87009-36 by Jeffrey W. Lotz).

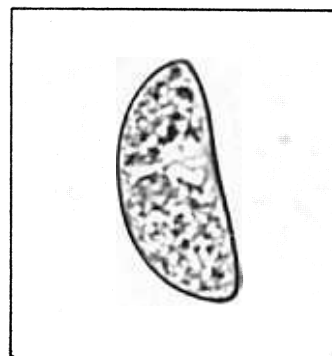


Fig. 3. Navicular ascospore X 1,444. (DPI Photo #87009).

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Many leaf spot pathogens affect live oak, but most are of minor importance. However, in the last several seasons, our plant disease clinic has received increasing numbers of specimens of oak affected with tar spot pathogens.

DISTRIBUTION. Live oak is found from southeastern Virginia to Texas, and southward to Key Largo, Florida; also in western Cuba (4). The species develops best in Louisiana and Mississippi, where there is much interest in protecting and preserving the remaining giant trees. The variety fusiformis (Small) Sarg. is found in southwestern Oklahoma, central Texas, and mountains of northeastern Mexico (4).

CAUSAL AGENT. Of the tar spot pathogens affecting live oak, Trabutia quercina (Fr. & K. Rud.) Sacc. & Roum. is of moderate importance as a foliar spotting fungus. It is an ascomycetous fungus which forms perithecia (fruiting bodies of the fungus) within the black stroma (protective covering). Typically, many perithecia are embedded in a single stroma. Asci contain 8 subhyaline, navicular ascospores (Fig. 3). Trabutia quercina has also been reported on other species of Quercus (1,2).

SYMPTOMS AND SIGNS. The black spots are round to irregular in shape and up to 7 mm across (Figs. 1 and 2). Stromatic development is usually on the upper or lower surfaces of leaves, but occasionally, on both sides. Stromata are surrounded by brown, necrotic leaf tissue which tracks along the main veins of infected leaves. Spots sometimes coalesce to form larger spots. Severe leaf infections of Q. virginiana may render nursery-grown plants unsalable because of unsightly foliage and reduce plant vigor by impairment of the photosynthetic process. The fungus matures in old overwintering leaves. Ascospore release would be expected during wet weather in the spring months when infection of new foliage may take place.

CONTROL. If the disease incidence is unusually high, the fungicide chlorothalonil can be tried for disease control. This fungicide is EPA-registered for use on red oaks (6). Raking and removing infected leaves is helpful in reducing inoculum.

SURVEY AND DETECTION. The appearance of coal-black slightly raised leaf spots is evidence of this disease.

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