

SOOTY MOLDS

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Sooty molds are dark-pigmented fungi which live saprophytically and superficially on plants (2). On leaves and twigs, these molds often form thin mycelial networks, a pellicle of fungal hyphae, a velvet-like covering, or a crusty covering. On trunks and larger branches the growths of sooty molds are more robust and have a crusty, spongy appearance. Sooty molds affect the appearance of plants (figs. 1 and 2) and tend to reduce the photosynthetic capacity of the host because of shading. Most sooty molds display no host preference, while some species of sooty molds are restricted to certain hosts (2).

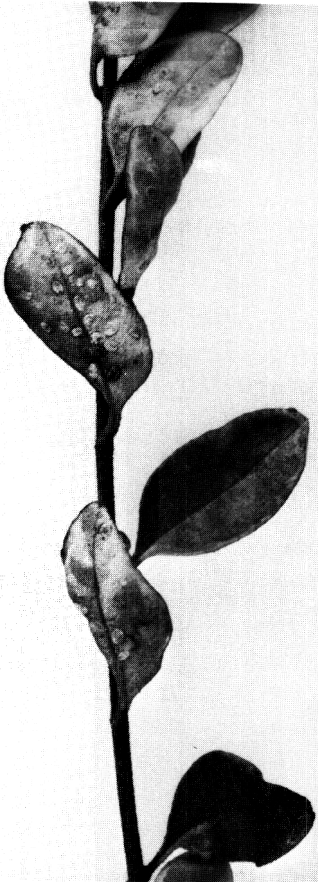


Fig. 1. Sooty mold infesting upper leaf surfaces of ligustrum (Ligustrum sinense Lour.) with scale insects on lower leaf surfaces.



Fig. 2. Leaves of L. sinense devoid of sooty mold (and scale insects).

Traditionally, sooty molds have been regarded as deriving their sustenance from honeydew excreted by aphids, coccoids, and many other sap-sucking insects. Insects usually infest lower leaf surfaces, and sooty molds usually infest upper leaf surfaces, reflecting the fact that insects on the lower leaf surfaces excrete honeydew which falls to the upper leaf surfaces. Honeydew has been analyzed and has been found to contain

sugars, free amino acids, proteins, and minerals (1). Sooty molds can also occur on plants not infested with insects. The source of the mold's sustenance may come from the leaf and stem leachates, from glandular trichomes as occurs on hibiscus (Hibiscus rosa-sinensis L.), or from resinous exudates as occurs on conifers (2).

The mycelium of many sooty molds has a mucilaginous outer wall which absorbs water very readily, acts as an adhesive, and maintains a moist leaf surface for a long period (2). These morphological features and the dark pigmentation, serve to protect sooty molds from adverse conditions such as wetting, drying, and direct sunlight. Despite their relative abundance and obvious presence, sooty molds have received scant attention as to their effect upon phylloplane (leaf-surface) ecology.

TERMINOLOGY AND TAXONOMY. The term "sooty mold" has been and continues to be applied variously (2). The term can be applied to certain taxa of fungi or can be applied to dark-pigmented fungi which are saprophytic and superficial on plants. This latter application which has been formally stated by Hughes (2) has been adopted here for the convenience of having a broad category for this heterogeneous group of fungi and for the avoidance of delving into taxonomic uncertainty. Hughes (2) groups sooty molds into several small families containing taxa which display uniformity, whereas Reynolds (3) places sooty molds into one perfect (sexual state known) family, Capnodiaceae sensu lato (applied in a broad sense) and two imperfect families. By either use of the term, sooty molds are ascomycetes and imperfect states of ascomycetous affinity. In addition to the valid and variant philosophies of principals involved with sooty mold taxonomy, these fungi do present complications to mycologists. Sooty molds tend to be pleomorphic (assume various shapes). Further, they frequently grow together in apparent harmony (as many as eight species have been observed) and discordant elements have often been described under one name (2). For example, the most common sooty mold on living leaves of a variety of hosts has usually been referred to as Fumago vagans Pers., but F. vagans is merely a mixture of Cladosporium and Aureobasidium (2).

The term "sooty mold" should not be applied to meliolaceous fungi (black mildews). These fungi are parasites since they invade the tissue of the host.

MANAGEMENT. To effectively manage sooty mold populations that are maintaining themselves on insect excretions, one should control the insect population. Hence, the insect should be identified.

SURVEY AND DETECTION. Black, superficial, saprophytic, fungal growths that occur on plant surfaces and most often in conjunction with insect populations are likely to be sooty molds.

LITERATURE CITED.

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2. HUGHES, S. J. 1976. Sooty moulds. Mycologia 68:693-820.
3. REYNOLDS, D. R. 1976. Observations on growth forms of sooty mold fungi. Nova Hedwigia 26:179-193.