

Sclerotinia Blight of Peanuts

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ABSTRACT

A peanut disease resembling *Botrytis* blight was recently observed in Virginia and North Carolina. Isolates of a *Sclerotinia* sp., tentatively identified as *S. sclerotiorum*, were readily isolated from diseased plant tissue. Typical field symptoms resulted following inoculation with this fungus. Although regarded as an important peanut disease in other countries, this is the first report of *Sclerotinia* blight of peanuts in the United States.

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Symptoms of a disease closely resembling severe *Botrytis* blight were observed on field-grown peanuts (*Arachis hypogaea* L.) in Virginia in 1971. This disease was observed during the 1972 growing season in both Virginia and North Carolina, ranging from <1% in some fields to >50% in others. Severity of the disease ranged from death of the plant to single- or multi-branch infections. Surface-disinfested diseased peanut tissue, when plated on potato-dextrose agar (PDA), readily yielded a fungus similar to *Sclerotinia sclerotiorum*.

This disease may be mistaken for *Botrytis* blight except when observed during disease development. Colonization of peanut plants by *B. cinerea* Pers. ex Fr. (1, 2, 3) normally begins near the apical end of lateral branches or at soil contact points along lateral branches, particularly those covered with plant debris (5). Under conditions of high humidity, colonization precedes until many branches become infected. *Botrytis* blight is characterized by the presence of gray mycelium, conidiophores and conidia on infected plant parts (Fig. 1-A). *B. cinerea* also colonizes leaflets causing discrete, well-defined lesions. Severe infection causes foliage and branches to blacken and mat together.

Colonization by *Sclerotinia* begins in tap roots near the soil line or in lateral branches along soil contact points. Frequently, all lateral branches of a plant are invaded. Pegs are invaded at the soil line and as colonization proceeds, the fungus moves into and colonizes lateral branches. Branch lesions are light tan, with a distinct demarcation zone existing between diseased and healthy tissue. With time, branch lesions turn dark brown, and diseased tissue becomes severely shredded (Fig. 1-B). Pods on severely infected plants are usually rotted. Tap roots and hypocotyls of severely infected plants are necrotic and blackened. Conidia and conidiophores typical of *B. cinerea* were not observed on branches infected with *Sclerotinia* sp. (Fig. 1-B). Leaf lesions characteristic of *B. cinerea* infections were not observed in *Sclerotinia*-infested fields. White, fluffy mycelium was abundant on *Sclerotinia*-infected plant parts and on the soil surface in close proximity to infected plant parts or debris in the field, particularly during periods of high humidity. Mycelium of this type has not been associated with *B. cinerea* infections.

Sclerotia by *B. cinerea* are large and irregular-shaped. These sclerotia are frequently produced on the surface of infected branches and rotted pods, but rarely within infected plant tissue. Infection of peanuts with *Sclerotinia* sp. is characterized by profuse sclerotia production. These sclerotia are not only smaller than those produced by *B. cinerea*, but are produced on the surface of and within infected branches (Fig. 1-C), in the central portion of the tap root (Fig. 1-D), on the pegs (Fig. 1-E), on the surface of pods (Fig. 1-F), on the interface of the shell (Fig. 1-G), inside the pod on the seed (Fig. 1-H), and within the intercellular spaces of the shell matrix.

Isolates of *Sclerotinia* obtained from infected peanut plant parts were grown on PDA for use in pathogenicity tests. One petri plate containing a 10-day-old culture of *Sclerotinia* was ground in 100 ml distilled water. The resulting suspension was mixed with the top 5-cm of soil in which peanuts (2-mo-old) of the cultivar 'Virginia Bunch 46-2' were growing. Control plants were inoculated with a similar aqueous suspension of PDA not containing the fungus. Symptoms of *Sclerotinia* blight similar to those that occur under field conditions were evident on inoculated plants 3 wk after inoculation. Sclerotia were produced on diseased tissue, but not abundantly as in the field.

The causal fungus, isolated from blighted peanuts, has been tentatively identified as *Sclerotinia sclerotiorum* (Lib.) DeBary (*S. minor* Jagger) using the speciation concept of Purdy (4). *Sclerotinia* blight of peanut has been reported from China, Japan, and Argentina (2). This

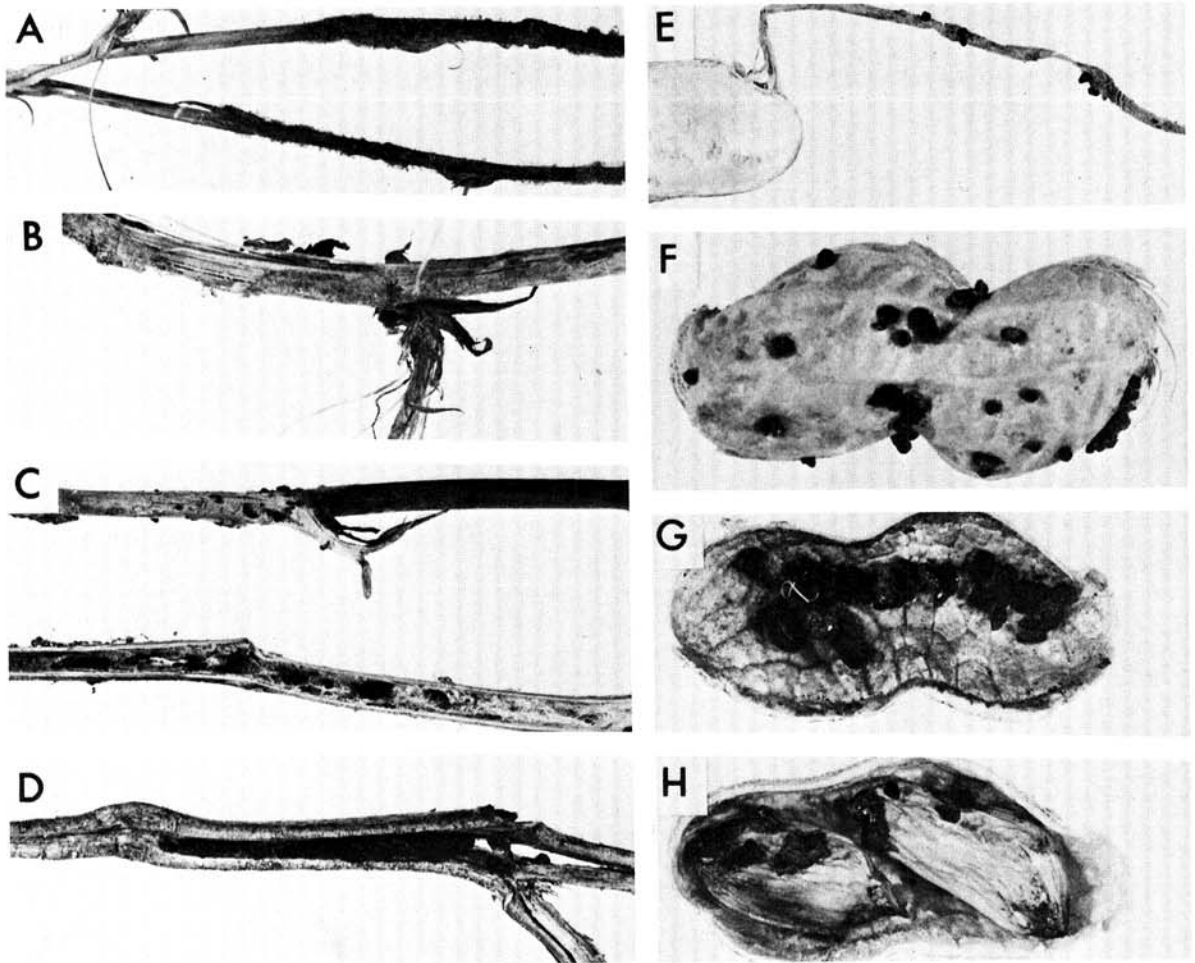


Fig. 1-(A to H). **A)** Peanut branch infected with *Botrytis cinerea* showing typical conidia and conidiophore development. **B)** Peanut branch infected with *Sclerotinia* sp. showing typical tissue shredding, but lacking conidia and conidiophores. Sclerotia production by *Sclerotinia* sp. on diseased plant tissue including **C)** on and in the branches, **D)** in the central portion of the tap root, **E)** on the pegs, **F)** on the fruit surface, **G)** inside the shell and **H)** on the seed surface inside the shell.

is thought to be the first report of *Sclerotinia* blight of peanut in the United States.

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