

PHOMOPSIS CANKER OF 'ROBUSTA' POPLAR

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'Robusta' poplar (*Populus* × *Euroamericana*) is used extensively in the north central part of the United States as a fast-growing shade tree. This hybrid is asexually reproduced by stem cuttings and is commonly grown in tree nurseries. A stem canker suspected to be caused by *Phomopsis macrospora* T. Kobayashi and Chiba, has caused considerable losses in nursery grown trees in Minnesota. This fungus causes a similar canker disease in cottonwood (*P. deltoides*) in Mississippi, (1, 2) and Paulownia (*Paulownia tomentosa*) in Japan (3).

In July 1974 a random sample of 103, 2-year-old nursery-grown 'Robusta' poplar trees were examined for cankers. Sixteen percent of the trees were not cankered and the remaining 84% had one or more basal (below 30cm) or aerial (above 30cm) stem cankers above ground (Fig. 1, 2). The majority of the diseased trees (44%) had basal cankers and only 13% had aerial cankers. Both types of cankers were found on 27% of the trees, and as many as 4 cankers were found on 7% of the trees. No trees had been killed by the fungus, but 10% were broken at the canker and would be rogued from the nursery.

Phomopsis macrospora was isolated from 100% of the basal and aerial stem cankers from 15 trees selected at random. Two species of *Fusarium* and one species of *Verticillium* were occasionally isolated from basal cankers. The identification of *P. macrospora* was confirmed by Dr. Colin Booth, Commonwealth Mycological Institute, Kew, England.

Three 2-year-old 'Robusta' poplar trees were inoculated with *P. macrospora*, *Fusarium* sp. (isolates 1 and 2), *Verticillium* sp., or sterile grain. The fungi were grown on sterile grain (oats) for about 30 days. Drill and knife wounds were made about 5 mm deep into xylem tissues at 15 and 45



Fig. 1, 2. Main stem cankers on 'Robusta poplar' caused by *Phomopsis macrospora*.

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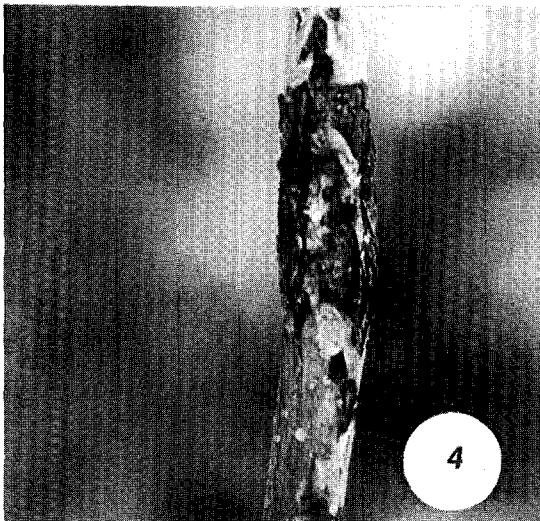
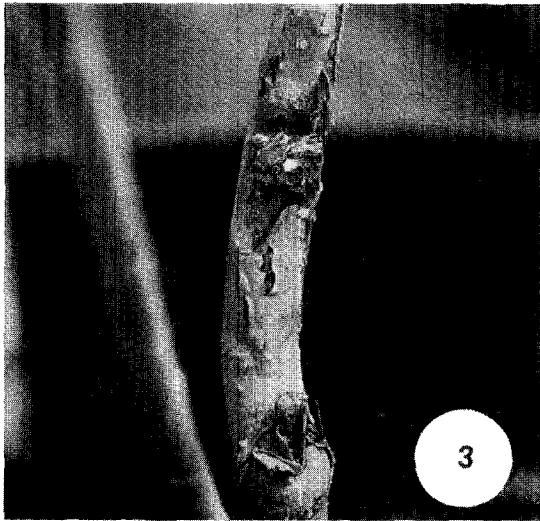


Fig. 3, 4. Cankers on the main stem of 'Robusta popular' resulting from inoculation with *Phomopsis macrospora*.

cm above the base of the stem, respectively. Inoculum was aseptically placed in the wounds and held in place with masking tape.

Cankers developed from all six inoculations with *P. macrospora* (Fig. 3, 4), but not when the other fungi or sterile grain were used. *Phomopsis macrospora* was reisolated from all resulting cankers.

Although the numbers of trees in the study were limited, these results indicated that *P. macrospora* can cause cankers on 'Robusta' poplar and that this fungus has been responsible for major losses in nurseries producing this tree species. Recently, in one nursery about 80% of the 'Robusta' poplar were cankered by *P. macrospora* and could not be sold. Unknowingly diseased trees also have been sold to customers before the lethal cankers were evident. Occasionally poplars held in bare-root storage over winter have been a complete loss due to these cankers. Every effort should be made to detect infection and only disease-free trees should be planted.

Literature Cited

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