

## Trunk and stem canker of coffee trees

by

Eddie Echandi<sup>1</sup>

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A disease of coffee characterized by the formation of cankers on the trunks, stem and branches of coffee trees has been found for the first time in Costa Rica. This disease was first noticed on a coffee plantation located west of San José, during the latter part of the rainy season of 1955. A fungus of genus *Ceratostomella* was isolated from the canker. Isolation from diseased coffee trees on plantations near Cartago and north of San José also yielded the same fungus.

The symptoms of the disease and the causal organism are similar to the ones reported by PONTIS from Colombia and Venezuela (1) and by SZKOLNIK from Guatemala (2).

The disease has been found attacking coffee trees about 40 or 50 years old. The earliest symptom is a chlorosis of the leaves on stems near the canker. The chlorotic leaves drop and the stem dies. Branches both above and below the original canker may be killed and the whole tree may die eventually. Death of the tree may take place a few months or over a year after the first symptoms appear.

Diseased coffee trees often have no visible canker. However, if the bark is removed, a red-brown discoloration is found in the wood. In older cankers a dark brown to black discoloration may be seen. This discoloration does not extend deeply into the wood. The cankers vary in size and shape, and they can appear in almost any woody part of the tree, but are most commonly found near the soil surface in proximity to pruning wounds. Most of the diseased trees observed have been heavily pruned and most of the pruning has been done about a foot above the soil surface. In young trees (5 years old) cankers could be detected without removing the bark, because the stems or branches were completely girdled. Completely girdled stems and branches may

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<sup>1</sup> Plant Pathology Section of the Ministerio de Agricultura e Industrias de Costa Rica

in some cases live for an indefinite period. Pruning of the dead branches of heavily diseased trees sometimes stimulates the production of new shoots, but these are weak and carry only a few abnormally small coffee berries.

Observations made in some of the coffee farms of the Central Plateau indicated that the disease has been present in the country for a long period, but since the disease appears most commonly in old plants, it has been overlooked or confused with other diseases.

#### CAUSAL ORGANISM

Isolations made from cankers yielded a fungus identical to *Ceratostomella fimbriata* described by Pontis as causing a canker on coffee trees (1). Perithecia of *Ceratostomella* (fig. 1) were formed on potato dextrose agar at room temperature 4 days after seeding. These perithecia exuded hat-shaped ascospores (fig. 2). Asci were not observed. Hyaline continuous conidia were abundant (fig. 3). Brown, thick-walled conidia were present in 20-day-old cultures.

#### INOCULATIONS OF COFFEE PLANTS

Two year old shoots of coffee trees were inoculated with 3-day-old cultures of *C. fimbriata* in potato dextrose agar by making a vertical cut into the shoot about 5" from the base and inserting the mycelium. The wounds were then covered with plastic tape. Ten shoots were inoculated in this manner and potato dextrose agar alone was inserted in 5 control shoots. Necrosis began to appear in the border of the wounds 3 days after inoculation, extending rapidly both up and down from the point of inoculation. The cankers varied in size and shape. In several of the cankers perithecia appeared extruding spores 11 days after inoculation. In all cases the fungus could be reisolated from the cankers. The leaves on some of the stems close to the point of inoculation wilted and became chlorotic after 14 days, and fell after 30 days.

#### SUMMARY

The canker disease of coffee incited by *Ceratostomella fimbriata* has been found for the first time in Costa Rica. The disease is characterized by chlorosis, defoliation, and eventual death of coffee stems, branches, and the tree itself. Inoculation with the fungus resulted in production of typical symptoms. Observations made seem to indicate that the disease has been present on coffee trees in the main coffee growing regions for a long period.

#### RESUMEN

El A. encuentra por primera vez en Costa Rica *C. fimbriata* como agente causal de la "llaga macana" del cafeto. La enfermedad se caracteriza por clorosis,

defoliación y, eventualmente, muerte de los tallos, ramas y de la planta misma. El hongo también produce una llaga con decoloración pardo-rojiza del leño. El hongo inoculado experimentalmente determinó lesiones típicas. Las observaciones efectuadas parecen indicar que la enfermedad ha existido en las principales regiones cafetaleras desde hace mucho tiempo, atacando principalmente plantas viejas.

### LITERATURE CITED

1. PONTIS, R.  
1951. A canker disease of coffee trees in Colombia and Venezuela. *Phytopathology* 41(2):178-183.
2. SZKOLNIK, M.  
1951. Coffee trunk and stem canker in Guatemala. *U. S. Dept. Agr. Pl. Dis. Repr.* 35(11):500-501.

- Figs. 1-3: *Ceratostomella fimbriata* incitant of the coffee canker.
- Fig. 1: Long-necked perithecia.  $\times 100$ .
- Fig. 2: Apex of the neck showing hat-shaped ascospores.  $\times 450$ .
- Fig. 3: Hyaline continuous conidia.  $\times 450$ .

