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DIEBACK CAUSED BY *VERTICILLIUM DAHLIAE* ON *BLIGHIA SAPIDA*

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Abstract. **Akee trees (*Blighia sapida* K. Koenig) with wilt/dieback symptoms were found in a local south Florida commercial planting during the spring of 1999. A fungus, isolated from the roots onto V-8 agar, was identified as *Verticillium dahliae* Kleb. by the Division of Plant Industry. Twenty Akee seedlings were transplanted into 3.85 L plastic pots and grown in a greenhouse at 28 °C-day/23 °C-night temperature. When the plants were approximately 25 cm in height, stabbing a 15 cm long knife, four times into the root zone, severed the roots. A standard plate of uninoculated V-8 Agar was blended with 160 mL of sterile water and 15 mL of this slurry was poured into the disturbed soil of each of 10 control plants. A slurry, made and applied as above, using a 2-week-old culture of *V. dahliae* onV-8 Agar, was used to infest the soil around the 10 treatment plants. Plants were**

kept in the greenhouse. After 6.5 weeks, leaves of inoculated plants had symptoms of marginal leaf burn. No symptoms were seen on the control plants. *Verticillium dahliae,* was isolated from the roots of the inoculated plants.

Young akee trees (*Blighia sapida*) have declined or died-back slowly in scattered areas of a grove in Miami-Dade County, Florida. The trees were planted in soils in which vegetables had been grown previously (Conover, 1959). During the spring of 1999 discolored roots of affected trees yielded *Verticillium dahliae* Kleb (McMillan et al., 2002). The purpose of the study was to reproduce the disease in akee.

Materials and Methods

A fungus, isolated from the roots onto V-8 agar, was identified as *Verticillium dahliae* Kleb. by the Division of Plant Industry. Twenty akee seedlings were transplanted into 3.85 L plastic pots and grown in a greenhouse at 28 °C-day/23 °C-night temperature. When the plants were approximately 25 cm in height, stabbing a 15 cm long knife, four times into the root zone, severed the roots. A standard plate of uninoculated V-8 agar was blended with 160 mL of sterile water and 15 mL of this slurry was poured into the disturbed soil and damaged roots of each of 10 control plants. A slurry, made and applied as above, using a 2-week-old culture of *V. dahliae* on V-8 agar, was used to infest the soil and damaged roots around the 10 treatment plants. Plants were kept in the greenhouse at the above temperature setting observed daily.

Fig. 1. *Verticillium dahliae* infected Akee (*Blighia sapida*) tree showing terminal dead branches, leaf necrosis.

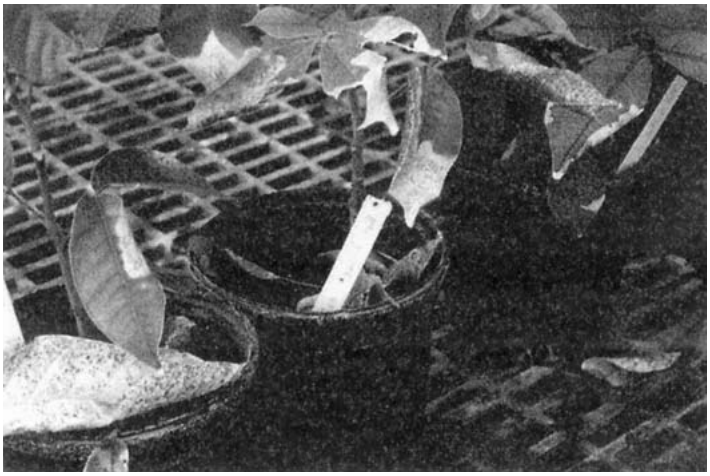

Fig. 2. Necrotic leaf symptoms of *Verticillium dahliae* inoculated Akee (*Blighia sapida*) seedlings in the greenhouse.

Results and Discussion

One or more branches died and the leaves became brown, but most of the leaves remained attached to the dead branches (Fig. 1). Wood (Fig. 3) and roots of affected plants showed brown discoloration typical of the Verticillium wilt disease in woody trees (Marlatt and Goldweber, 1969; Marlatt et al., 1970).

Forty-six days after inoculation, a few leaves on the 10 inoculated trees dried slowly from their tips to their petioles. The affected leaves did not hang loosely, but twisted slightly as they dried (Fig. 2). Since these plants were grown in the greenhouse at the temperatures listed in the materials and methods section, dead leaves were a tannish-brown. No symptoms were observed on the control plants.

V. dahliae was recovered from the discolored roots only from the inoculated trees. The Akee grove is visited periodically and this disease continues to spread from infected trees to healthy trees. In 1999 only five trees out the grove of 40 trees were showing decline and to date 20 trees are affected.

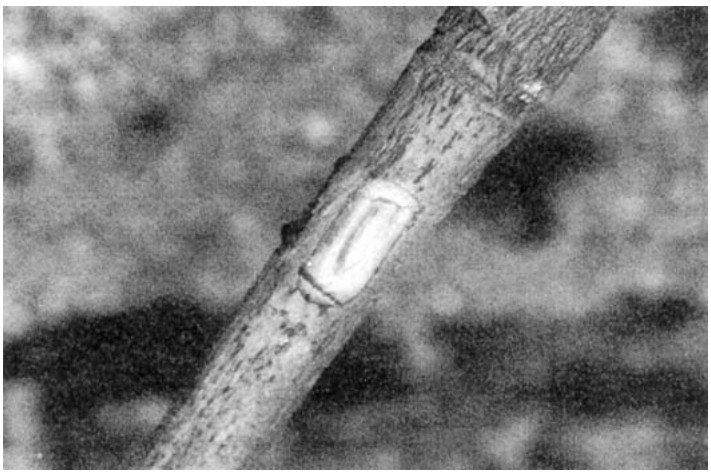

Fig. 3. Discolored vascular tissue caused by *Verticillium dahliae* of Akee (*Blighia sapida*) tree in the infected grove.

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