

# THIELAVIOPSIS BUD ROT OF PALMS

prepared by J.F. Garofalo

## FOUND ON WASHINGTONIA PALMS

Since 1996 *Thielaviopsis* bud rot (TBR) has been reported in South Florida at least 6 times. The number of palms involved in each case was 10 or so, and by the time it was noticed all palms in the group were infected.

This Fact Sheet was prepared to meet the needs of professional landscape personnel, property managers, owners, and other interested persons, who invariably request information "in writing" after a diagnosis of TBR has been made.

TBR is commonly known in Florida as *Thielaviopsis* bud rot. Other common names include the following: *Thielaviopsis* trunk rot, stem bleeding, black scorch, dry basal rot, "bitten leaf," and heart rot. All these names describe symptoms which may or may not be expressed in a given case (2). (Numbers in parentheses refer to titles in the References section.)

## SUSCEPTIBLE SPECIES

Though TBR has been reported most recently on *Washingtonia* palms, it has been reported in Florida and elsewhere on other palms, on some hardwoods, and on a few herbaceous ornamentals (Table I).

## CAUSAL ORGANISM

The causal organism of TBR is a soil-borne fungus which occurs naturally in South Florida, and can be

efficiently spread both by nature and by man in soil, on plants, and probably in storm water. It enters the palm through wounds, and causes the disintegration of the trunk and/or bud. Leaves and stems of seedling palms can also be effected.

**Table I.** Species in which TBR has been reported in Florida (1), and elsewhere (2).

*Aglaonema commutatum*, aglaonema  
*Ananas comosus*, pineapple  
*Areca catechu*, betel nut palm \*\*  
*Brahea edulis*, \*\*  
*Caryota spp.*, fishtail palms \*\*  
*Cocos nucifera*, coconut  
*Dracaena fragrans*, dracena or corn-plant  
*Elaeis guineensis*, African oil palm \*\*  
*Eleocharis dulcis*, Chinese water chestnut \*  
*Ficus spp.*, figs  
*Howea forsteriana*, Kentia palm\*  
*Phoenix africanus*, date palm\*\*  
*P. canariensis*, Canary Island date palm  
*P. dactylifera*, true date palm  
*Rhapis sp.*, lady palm\*\*  
*Roystonea elata*, royal palm\*\*  
*Sabal palmetto*, cabbage palm  
*Saccharum officinarum*, sugarcane  
*Syagrus romanzoffianum*, queen palm\*  
*Syngonium podophyllum*, nephthitis  
*Veitchia merrillii*, Christmas palm  
*Washingtonia filifera*, Washington palm\*\*  
*W. robusta*, Mexican Washington palm\*

\*reported as *Chalara* sp.

\*\*reported outside Florida

The fungus causing this disease is known by several names, including *Thielaviopsis paradoxa*, *Chalara paradoxa*. and *Ceratocystis paradoxa*.

They all refer to the same pathogen (2). It should be noted that other species of the fungus cause disease in plant species grown in Florida (1), but here we are discussing only the disease TBR in palms.

## OCCURENCE

TBR has been reported worldwide, just about everywhere palms can be grown. In the United States it occurs in Arizona and California, in addition to Florida. Meerow (4) reports that TBR is increasing in frequency on palms in Florida. Wherever it occurs, the result has been devastated landscapes.

Because it is so easily spread, in locations where TBR has been found, it is likely to recur because of the high concentration of susceptible species and the increased amount of inoculum (fungal spores) in the area.

## SYMPTOMS / IDENTIFICATION

Only the most common symptoms of TBR will be discussed here, those which may be useful in making an initial or "field" diagnosis. If it seems necessary to do so, a field diagnosis may be confirmed at a plant disease laboratory. Those labs operated by the University of Florida, I.F.A.S., Research & Education Centers in Homestead and Immokalee are in South Florida, thus may offer

advantages over other labs. Also, the University of Florida labs are usually the least expensive. (You may wish to pick up a copy of *In Writing* fact sheet No. 7, "Commercial labs for landscape & ornamental problem-solving." This fact sheet lists

labs in our area, including the UF labs, along with phone numbers and addresses.)

Persons familiar with a compound microscope and interested in making a laboratory identification for themselves should refer to Chase and Broschat (2). The description and illustrations in that paper are sufficient for such an identification.

## FIELD DIAGNOSIS

If you have palms dying in a property which you manage or maintain, especially if they are *Washingtonias* or other palms listed in table I, check for the following symptoms:

1. The palms fall over, with the stem bending about half-way up the bole. (In *Phytophthora* bud rot, the stem bends at the tip--the **bud** falls over.)
2. The trunk begins to bleed from small cracks. This symptom may come before stem-bending, or it may occur later. The bleeding involves from 1 to 5 feet of the trunk, at the base. The cracks are often quite small, and if they aren't at the bleeding stage, you will not notice them at all--the trunk looks normal. When bleeding starts, there may be a foamy, white fluid--in the early stages you may just find wet, soft spots, from penny size

on up, with no bleeding down the trunk. Later the foamy fluid smells like wine, and the area down the trunk turns black.

3. In later stages the trunk will be essentially hollow, with nothing but stringy tissue left inside; the outside (the "bark") appears normal.

Additional symptoms can easily be confused with symptoms of other diseases, but these three are specific for *Thielaviopsis* in palms. We can say that these three symptoms are sufficient for a "field diagnosis," but that confirmation can only come through laboratory identification of the fungus.

#### PREVENTION & TREATMENT

So, what do you do if you suspect TBR on one of the sites you maintain?

--If you are uncomfortable with a field diagnosis, contact a lab and get confirmation.

--First of all, remove and destroy the palms, roots and all, then replace the soil in the planting hole (as much as you can) with new, clean soil.

--The best next step is to replant with anything but a palm or other susceptible species (Table I).

--There are no chemicals known which cure TBR or stop its spread, though Thiophanate methyl + mancozeb (Duosan/Zyban) may be of some value in limiting the spread of seedling infections. (We are unaware of seedling infections in South Florida, though they could be here, not yet reported.) Chemicals have not been shown to be useful in infections of mature palms.

--The fungus can be spread in contaminated soil, so be careful not to move contaminated soil.

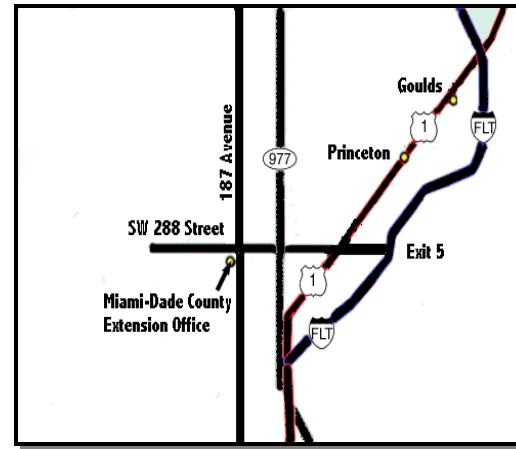
--You should also be concerned about the tools used to prune or remove dead or infected palms. These tools should be disinfected with alcohol (diluted 50:50 with water) or chlorine bleach (10%, i.e., one part to 9 parts water). Since these chemicals can corrode saw blades and chains, wash and oil them after disinfecting. Anyway, they should be well cleaned before you trim other palms

--As much as possible, avoid injury to palms with mowers, etc..

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#### Selected References

1. Alfieri, S.A., Jr., et al.. 1994. *Diseases and disorders of plants in Florida*. Bull. No. 14. Florida Dept. Agric. and Consumer Ser.. 1114 pp.
2. Chase, A.R., and T.K. Broschat. (eds.). 1991. *Diseases and disorders of ornamental palms*. Amer. Phytopath. Soc. Press, St. Paul. pp 30-32.
3. McMillan, R.. 1998. Personal communication.
4. Meerow, A.W.. 1994. *Betrock's guide to landscape palms*. Betrock Information Systems, Hollywood, Florida. p 130.



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#### In Writing

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Prepared by: Joseph F. Garofalo  
Extension Agent/Commercial Urban Horticulture  
Miami-Dade County Cooperative Extension Service  
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