PESTS AND DISEASES THREATENING URBAN PALMS IN PORTUGAL

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In recent years, interest in planting palm trees with ornamental purposes has increased significantly.

Frequently used in gardens and streets, in flower beds and interior spaces.

These plants show high plasticity, hardiness and adaptability to vegetate in varied soil and climatic conditions.
are affected by several *diseases and pests*
- symptoms: chlorotic and necrotic leaves, spots on the leaves and rachis, rot of the rachis, sheath, and trunk, dieback ...
- death of plants
and in 2007 *Rhynchophorus ferrugineus* was detected ... 
 municipalities and botanical gardens implemented expensive biological and chemical control measures
 ... but what about the impact of pink rot and *Thielaviopsis* trunk rot diseases?
Pests and diseases threatening urban palms in Portugal

Objectives

Which problems are affecting palm trees?

- Importance of the pink rot disease
- Importance of the Thielaviopsis trunk rot
- How to face all the problems?
- Does the weevil disseminate these diseases?
Pink rot - *Nalanthamala vermoesenii*

- Light-brown spots on the leaves and rachis
- Chlorotic and necrotic leaves
- Rot of the rachis, sheath, and trunk
- Eventual death of infected plants
A pinkish-orange to salmon-like layer on the surface and within the infected tissues ➔ masses of spores that are released.

Hosts: Archontophenix alexandrae, Howeia belmoreana, Phoenix canariensis, Washingtonia filifera, Washingtonia robusta

9% incidence in some municipalities
Pink rot - *Nalanthamala vermoesenii*

- *Nalanthamala vermoesenii* was isolated from symptomatic petioles and the pinkish-orange layer of the sheath.

- *Nalanthamala vermoesenii* was **also** isolated from adults of *Rhynchophorus ferrugineus*.

- Morphological and molecular (rDNA ITS) characteristics confirmed identity to *N. vermoesenii*.

PDA, 5 d a.i.

hyaline conidiophores with penicillate branches, ovoid, single-celled conidia in chains (3-4 x 4-6 µm, n=30)

conidiophores acremonium-like
The palm trunk collapses on itself or the canopy suddenly falls off.

The rot occurs on only one side of the trunk and moves from the outside to the inside of the trunk.

...an acetic fermentative odour emanated from the rotting tissues

**Hosts:** *Phoenix canariensis, P. dactylifera*
If infection has occurred on mature palms through leaf pruning cuts, leaves die progressively from the oldest up.

- The canopy often appears normal and healthy.
Thielaviopsis trunk rot - Thielaviopsis paradoxa

- *Thielaviopsis paradoxa* (anamorph of *Ceratocystis paradoxa*) was isolated from symptomatic trunks.
- *Thielaviopsis paradoxa* was also isolated from adults of *Rhynchophorus ferrugineus*.
- Morphological and molecular (rDNA ITS) characteristics confirmed identity to *T. paradoxa*.

PDA, 12 d a.i.

- Phialospores: 5-20 x 4-5 μm
- Aleuriospores: 10-24 x 7-15 μm
Pink rot  versus  Thielaviopsis trunk rot

How to distinguish both?
Pink rot versus Thielaviopsis trunk rot

- Different symptoms
- Different signs
Hosts:
Phoenix canariensis
Phoenix dactylifera
Sabal palmetto
Trachycarpus fortunei
Washingtonia robusta
Washingtonia filifera

RHYNCHOPHORUS FERRUGINEUS IN PORTUGAL
RHYNCHOPHORUS FERRUGINEUS IN PORTUGAL


Monthly treatments

2. June. 2013
Red Palm Weevil and Pink rot
Red Palm Weevil and Thielaviopsis trunk rot
Where are we going?

- The incidence and severity of both diseases are increasing.
- The palm weevil is threatening the continuity of palms in amenity spaces.
- The dissemination of both diseases and the spread of the pest are following the same pattern.
- The weevil has the ability to carry the spores of both *N. vermoesenii* and *T. paradoxa* and inoculate them into the mature palms.
- Also: *Beauveria bassiana* and *Metarhizium anisopliae* have been isolated from dead weevils (larvae and adults).
- Recent results coming out: the biological control against *N. vermoesenii* and *R. ferrugineus* is possible with *Beauveria bassiana*.