

50th The Arboricultural Association's National Amenity Conference

4-7 September 2016
Keele University, Staffordshire ST5 5BG

www.trees.org.uk/Amenity-Conference

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Landscape Institute
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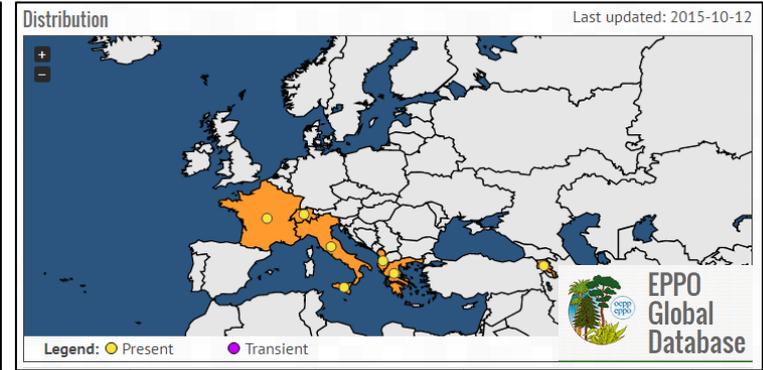
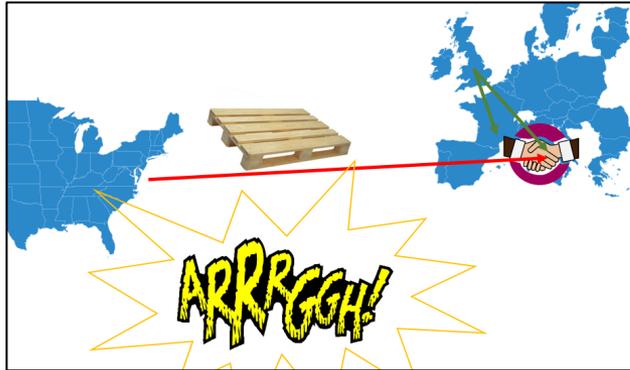
Developing a partnership model for tree health and resilience: the example of Canker Stain of Plane



Neville Fay and Lucio Montecchio



C. platani is moving northward from France and could cross the Channel.



Treework Environmental Practice (UK) and De Rebus Plantarum (IT) organized

a training workshop
in an Italian outbreak

to allow a small group of British **decision-makers** to get in touch with **biology and epidemiology, symptoms, diagnosis, control and good practices management ...**

Treework Environmental Practice

Canker stain of Plane
A Training Workshop in Italy

CIRPAM

Centro Interdipartimentale di Ricerca per il restauro, il recupero e la valorizzazione dei Parchi storici e degli Alberi Monumentali, University of Padova
Castelfranco Veneto, 24-26 June 2016



**Canker stain of Plane
A Training Workshop in Italy**



... and something more.

Centro Interdipartimentale di Ricerca per il restauro, il recupero e la valorizzazione
dei Parchi storici e degli Alberi Monumentali, University of Padova
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Today available time is not enough to talk in detail of Canker stain

Feel free to **download the workshop slide set** from www.luciomontecchio.it



LucioMontecchio
Professor of *Forest Pathology and Ornamental trees pathology* at the University of Padova, Italy.

Since 1992, his research has focused on mycorrhizal communities' composition in relation to forest decline. Other research includes the ecology of endophytic fungi, epidemiology and dynamics of forest diseases, and biological control.
The current emphasis is on low-impact, integrated management of Quarantine pests and diseases.

After inventing **BITE**, a drill-free trunk injection device, he joined "**PAN / DeRebusPlantarum**", an interdisciplinary spinoff of the University of Padova pointing to environment-friendly practices, with a special focus on plant-based insecticide pesticides.

Core member of the **European and Mediterranean Plant Protection Organization**. Member of the panel on Forest Quarantine at IPPC/FAO.



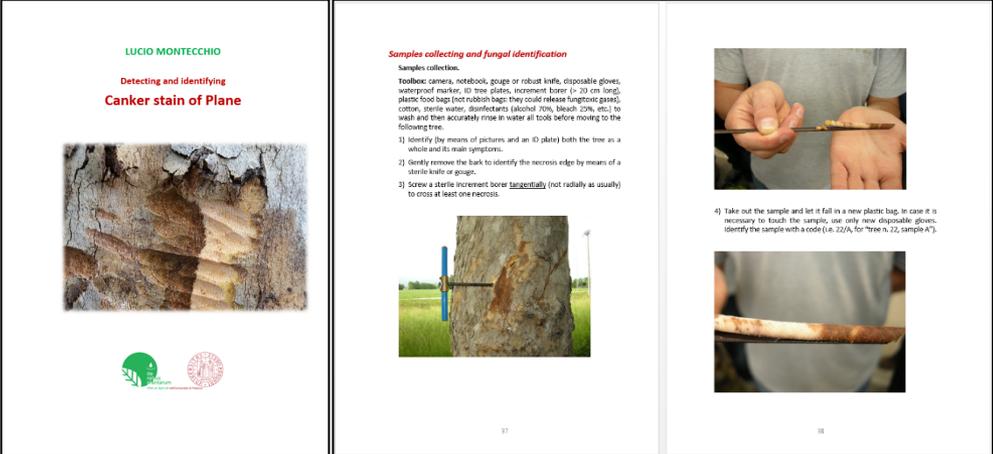
PPT Canker Stain workshop

A 50 pages step-by-step **booklet** (ISBN 978-88-902948-9-1) was written for the workshop and will be edited by the **London Tree Officers Association** (www.ltoa.org.uk) soon.

For further info contact **John Parker** (john.parker@ltoa.org.uk) or **Neville**.



John Parker at plane wilt training in Padua in June.



LUCIO MONTECCHIO
Detecting and Identifying
Canker stain of Plane



Samples collecting and fungal identification

Samples collection:
Toolbox: camera, notebook, gouge or robust knife, disposable gloves, waterproof marker, ID tree plates, increment borer (c. 20 cm long), plastic food bags (not rubbish bags: they could release fungitoxic gases), cotton, sterile water, disinfectants (alcohol 70%, bleach 2%, etc.) to wash and then accurately rinse in water all tools before moving to the following tree.

- 1) Identify (by means of pictures and an ID plate) both the tree as a whole and its main symptoms.
- 2) Gently remove the bark to identify the necrosis edge by means of a sterile knife or gouge.
- 3) Screw a sterile increment borer tangentially (not radially as usually) to cross at least one necrosis.

4) Take out the sample and let it fall in a new plastic bag, in case it is necessary to touch the sample, use only new disposable gloves, identify the sample with a code (i.e. 22/A, for "tree n. 22, sample A").

97

98

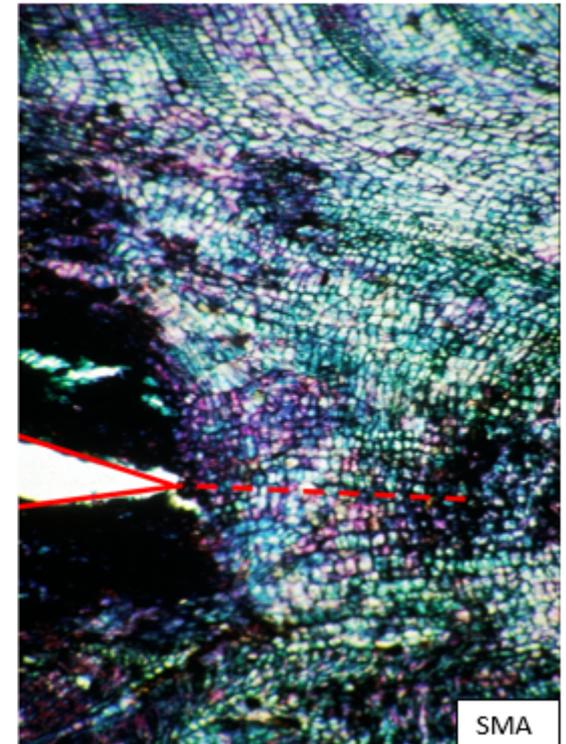
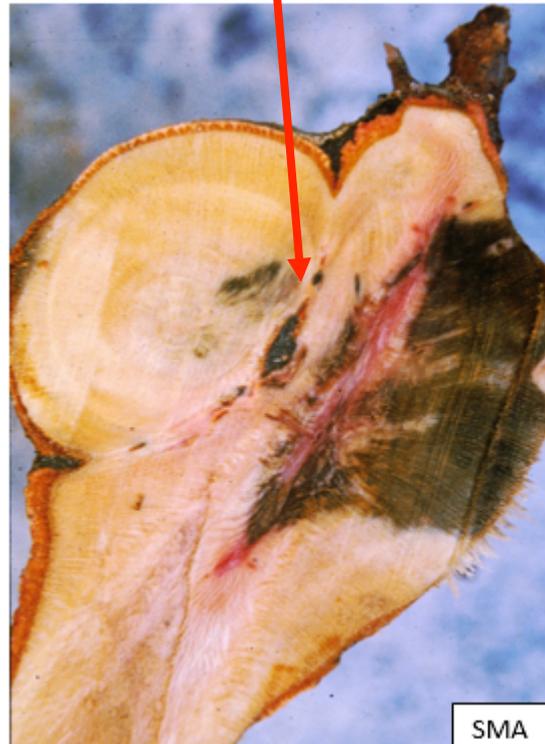
Biology and symptoms

Ceratocystis platani is a “wound parasite”.

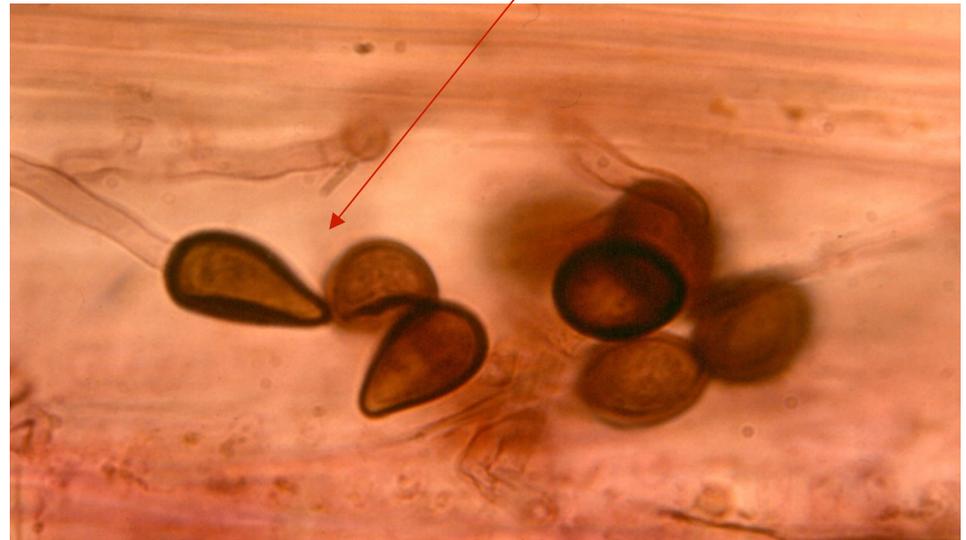
To infect a Plane it needs a **wound** of some kind

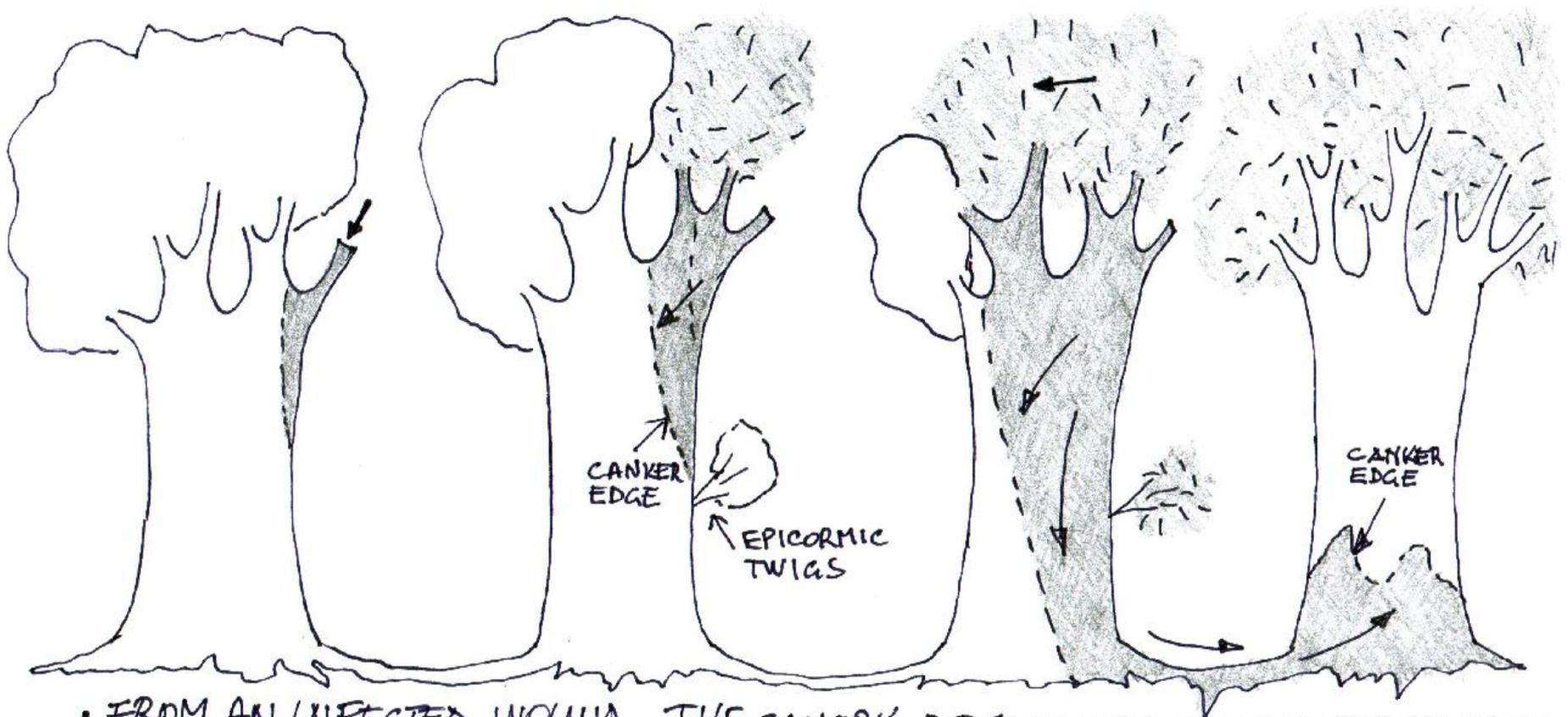
or

a **root graft** between neighboring trees.

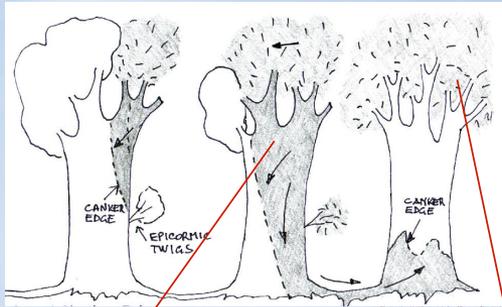


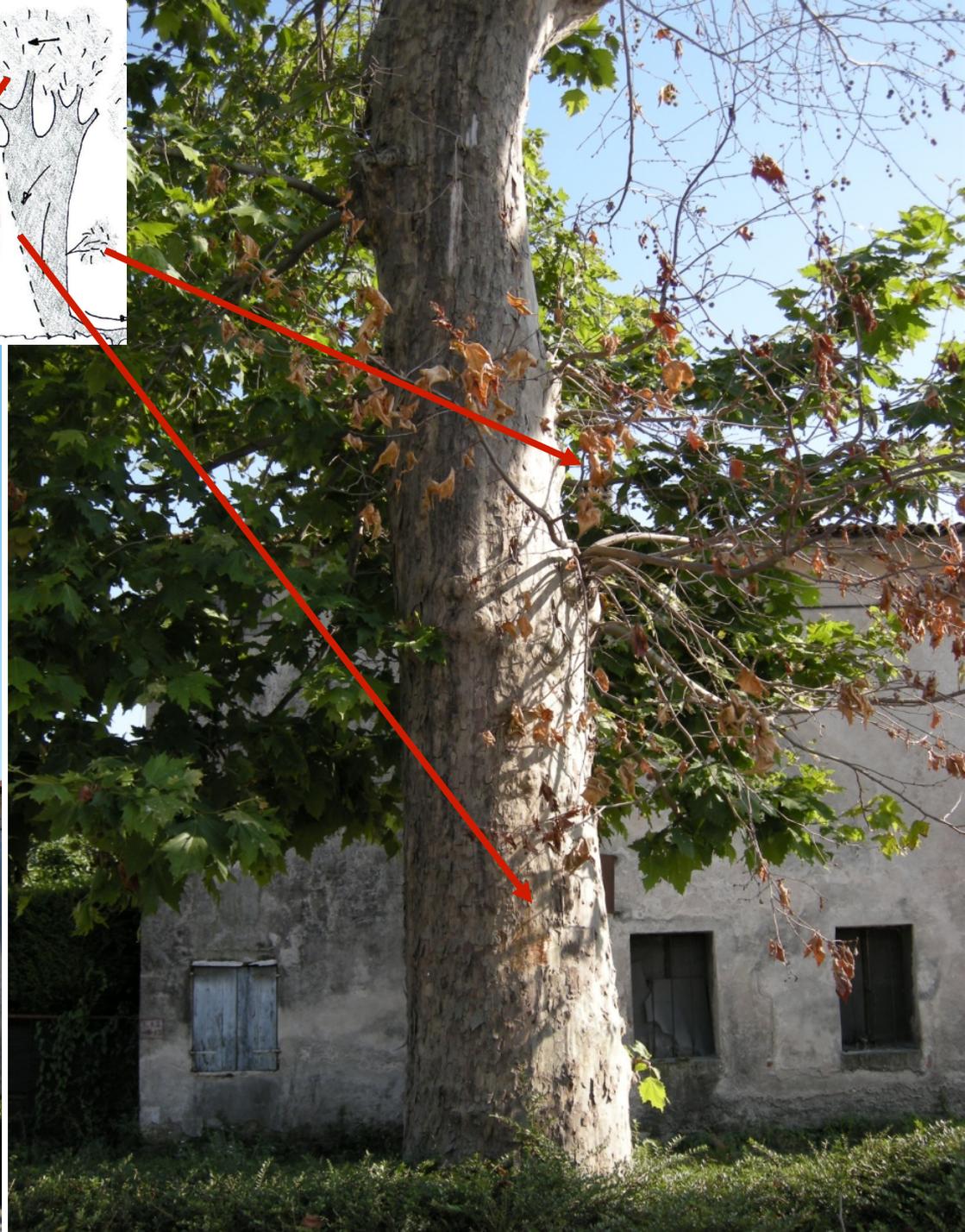
Then fungus colonizes all internal tissues including cambium
(no wound closure, consequent infections by wood decayers)
and
moves through vessels, inside which it releases conidia.





- FROM AN INFECTED WOUND THE CANOPY DESICCATES BRANCH-TO-BRANCH
- FROM A ROOT GRAFT THE CANOPY DESICCATES SUDDENLY









Detachment of bark in irregularly shaped plaques
Sometimes small blisters
Subcortical cankers with sharp and definite edges oriented according to fibers



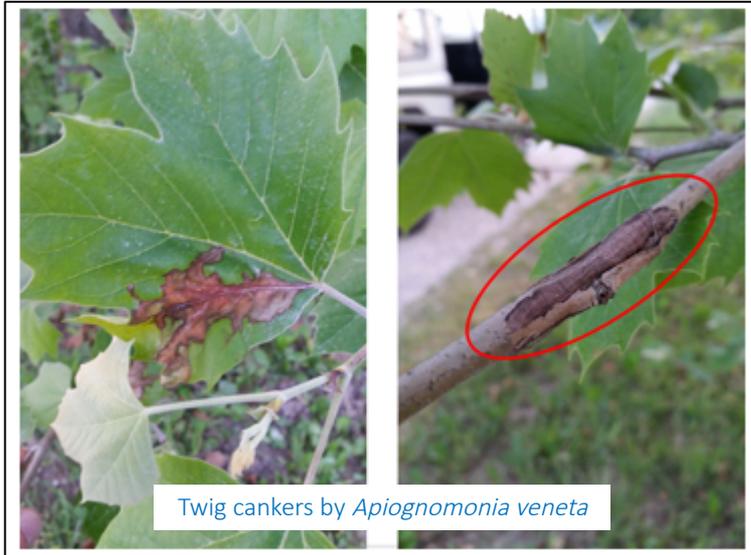
Internal necroses oriented to the paranchymatic rays

Ceratocystis likes starch



Consequent Decay and Insects holes can be present

Main misleading symptoms



Samples collection



Sterile tools.
Easier with a Pressler auger



Necrotic edges must be present



The «wet chamber» can be a food bag

Incubation



Looking for peculiar features

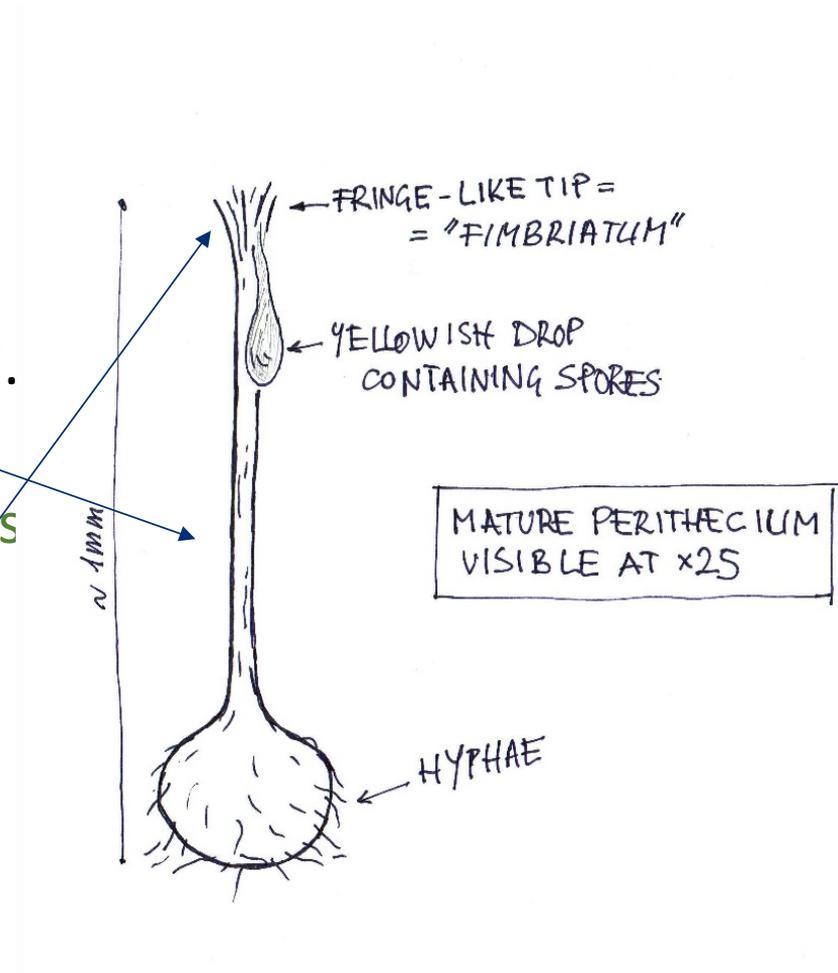
Canker stain of Plane is caused by the fungus *Ceratocystis platani*

(= *Ceratocystis fimbriata* f. sp. *platani*).

Fruit body: ca. 1 mm long "perithecium".

C. platani is **the only** *Ceratocystis* species causing Canker stain in the genus *Platanus*.

And on *Platanus* the only one with a "fimbriatum" (fringe-like) neck.



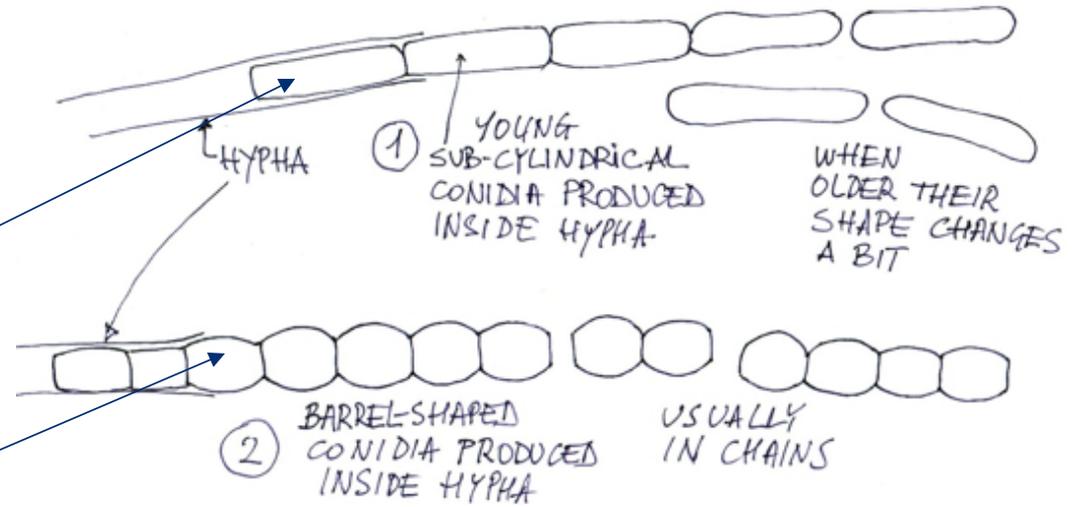
Conidia are released from the hyphae in

3 types:

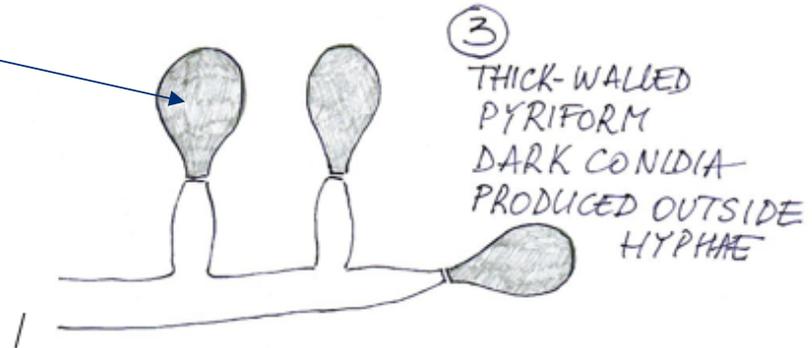
1) sub-cylindrical, truncated;

2) barrel-shaped;

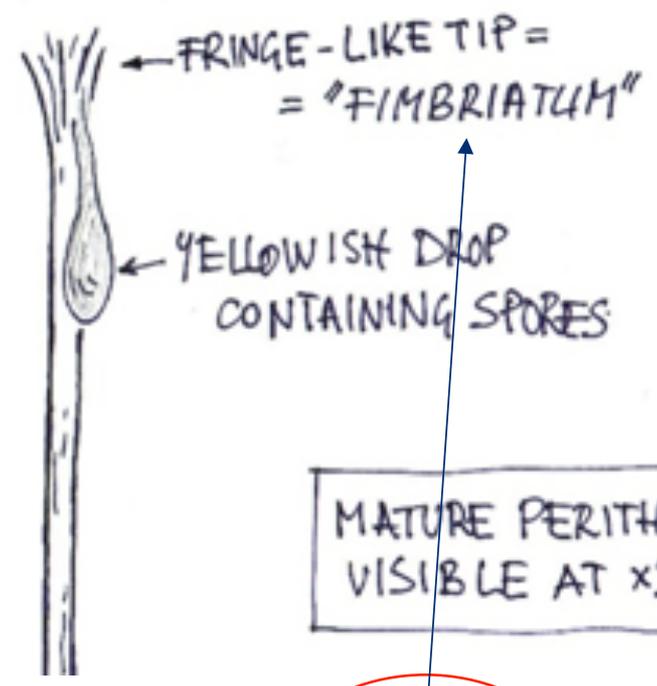
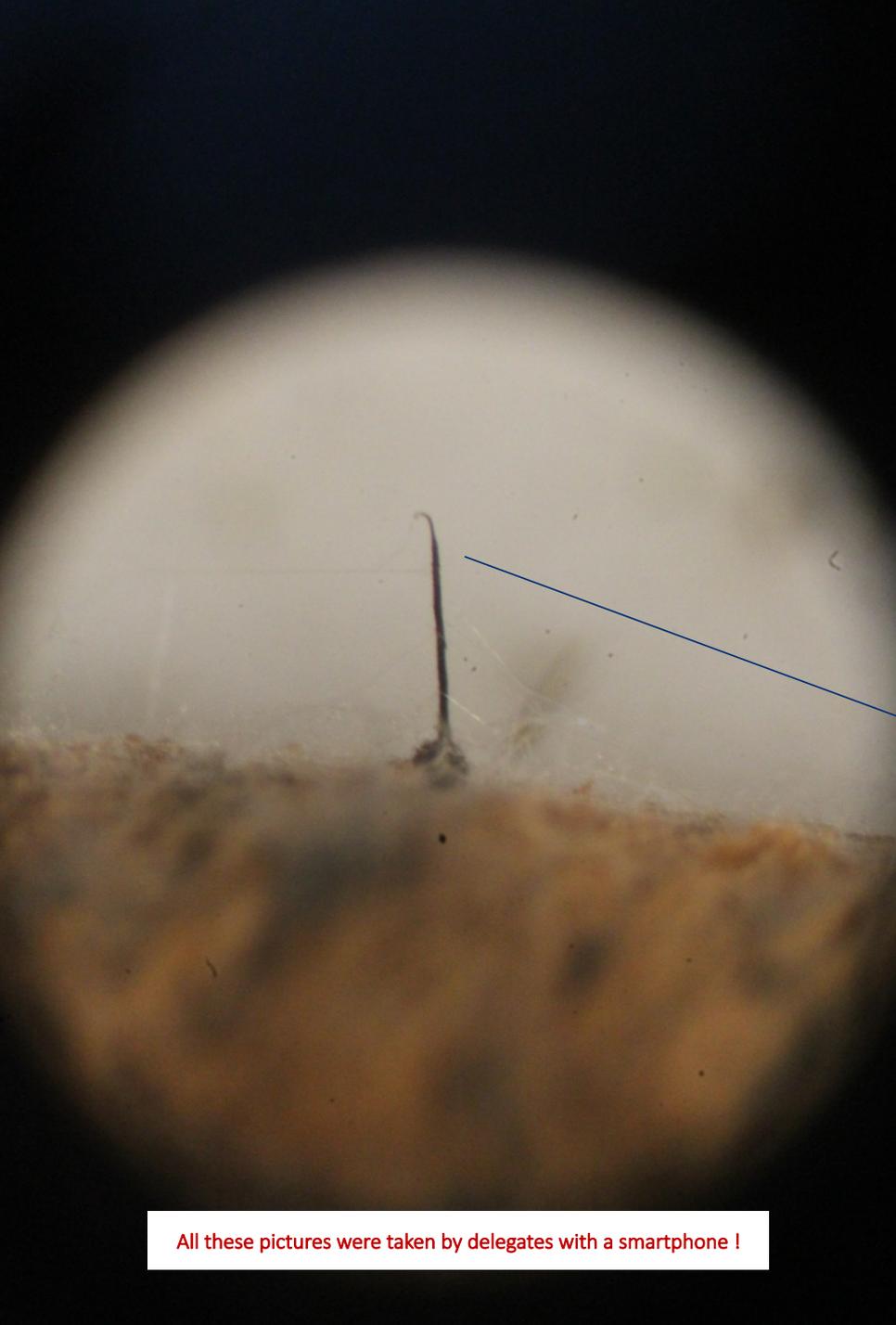
3) thick-walled, pyriform.



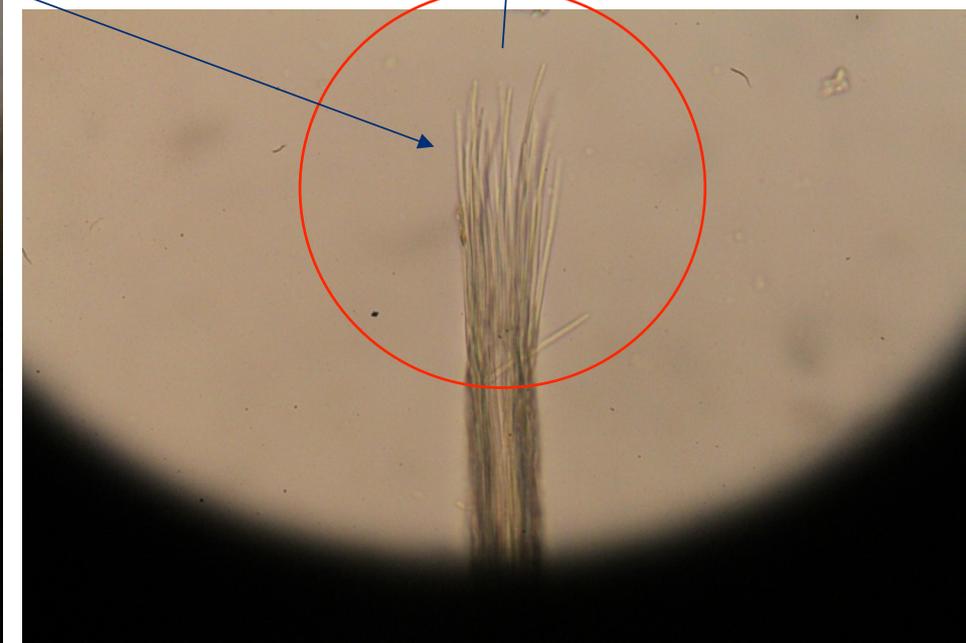
CONIDIA VISIBLE AT 250-400X



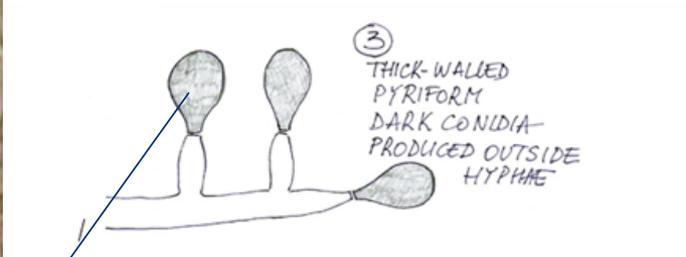
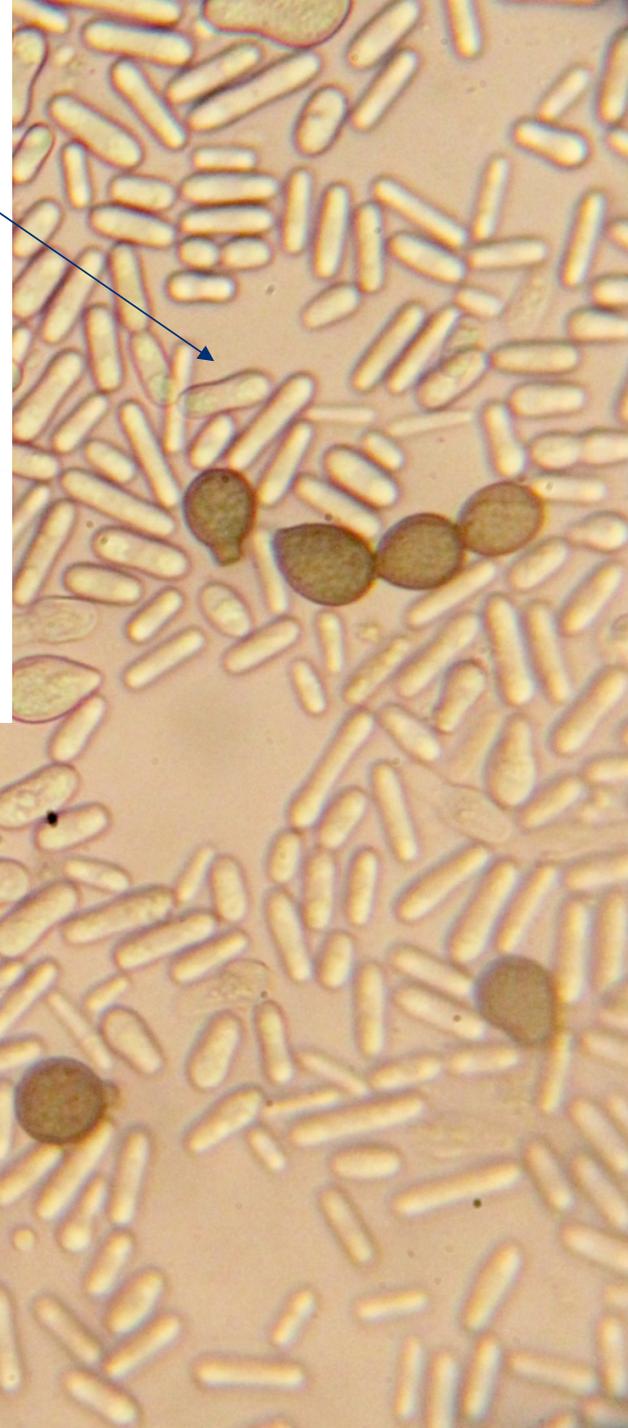
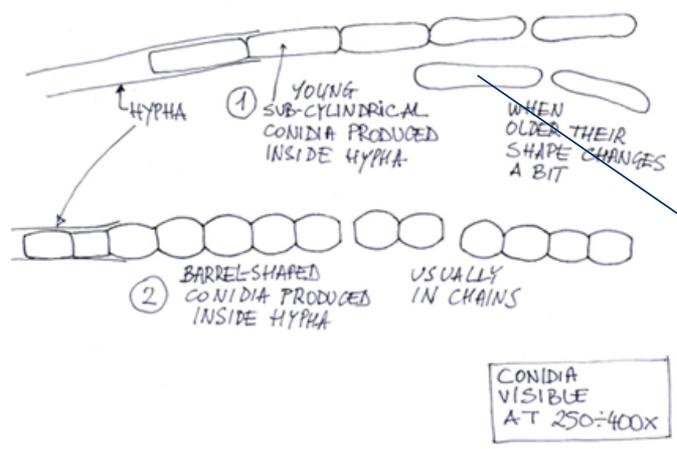




MATURE PERITHECIUM
VISIBLE AT x25



All these pictures were taken by delegates with a smartphone !



All these pictures were taken by delegates with a smartphone !

THERE IS NO CURE for this HUMAN-ASSISTED disease.

Expensive Control measures are not enough to avoid sawdust spread



Prevention: the only way to sleep easy

Movement of **plants for planting** and **non-squared wood** from **Countries** must be made according to Quarantine legislations (EU Dir. 2000/29/EC; national, local,).

DO NOT DO NOT DO NOT

- 1. Import** nursery stocks from infected areas.
- Enroll **contractors** previously involved in infected areas if you're not 101% sure their chainsaws are safe !

Chain substitution is never enough; clutch cover is a usual reservoir of sawdust.

