



The role of *Aureobasidium pullulans* in Esca disease

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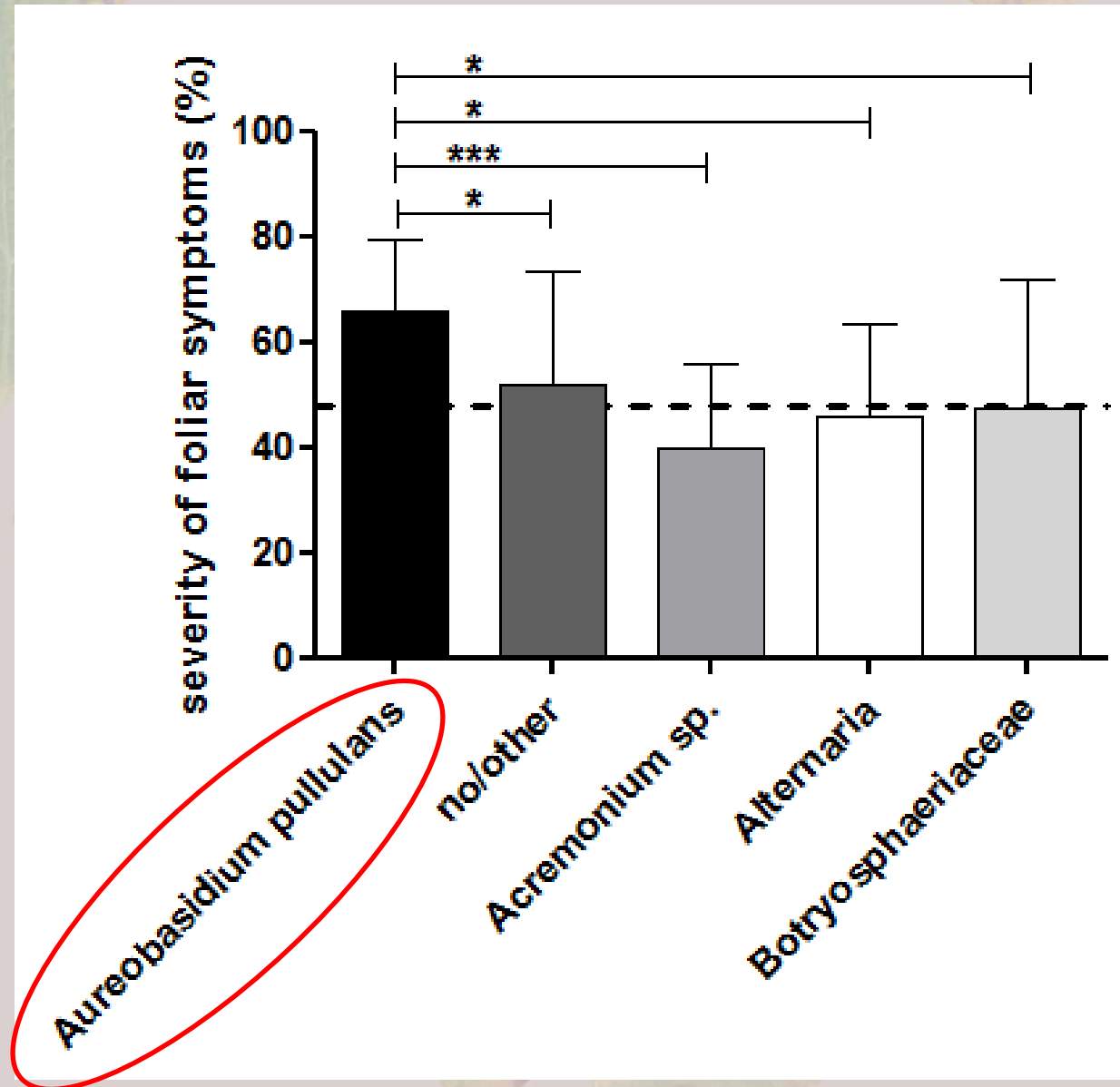
Esca disease of grapevine

- Part of the Grapevine Trunk Disease group
- Pathogens:
 - *Phaeomoniella chlamydospora* (Pch)
 - *Togninia minima* (Tmi)
- Symptoms:
 - tiger stripes on leaves
 - necrosis in wood
 - necrotic spots on berries



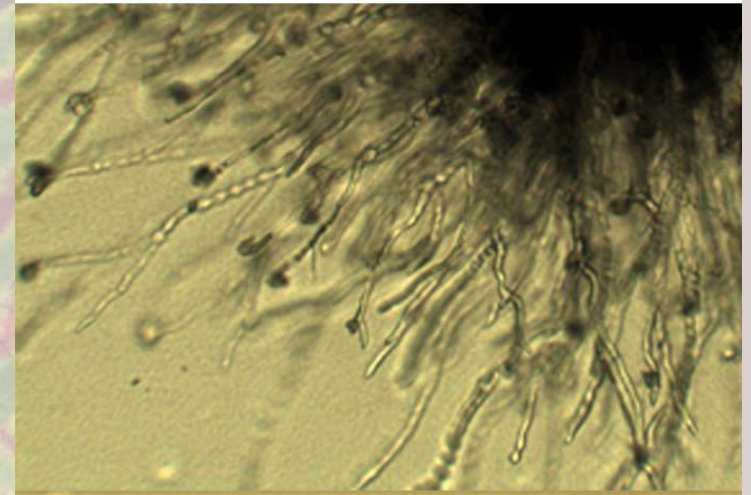
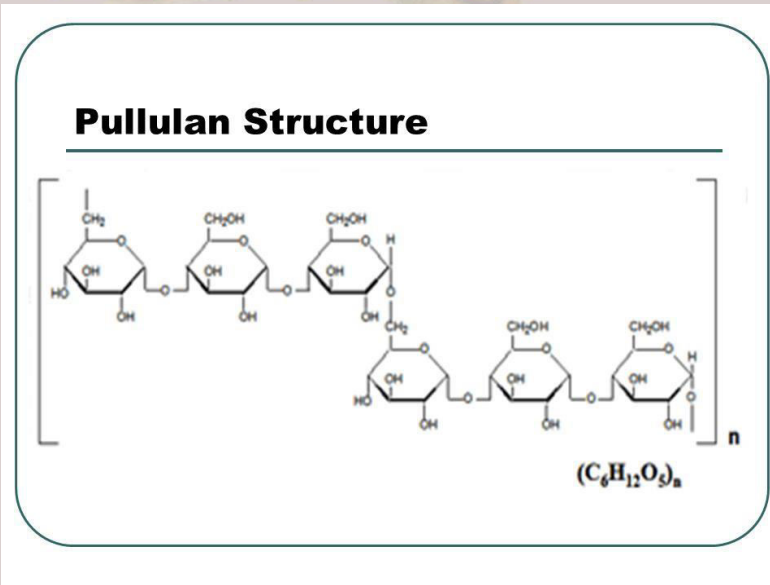
Source: <http://www.winetwork-data.eu/intranet/libretti/0/libretto16052-01-1.pdf>

Trunks with *Aureobasidium pullulans* show higher severity of foliar symptoms

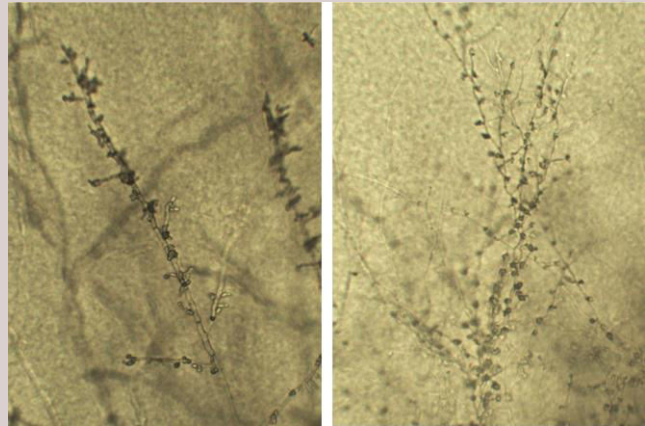
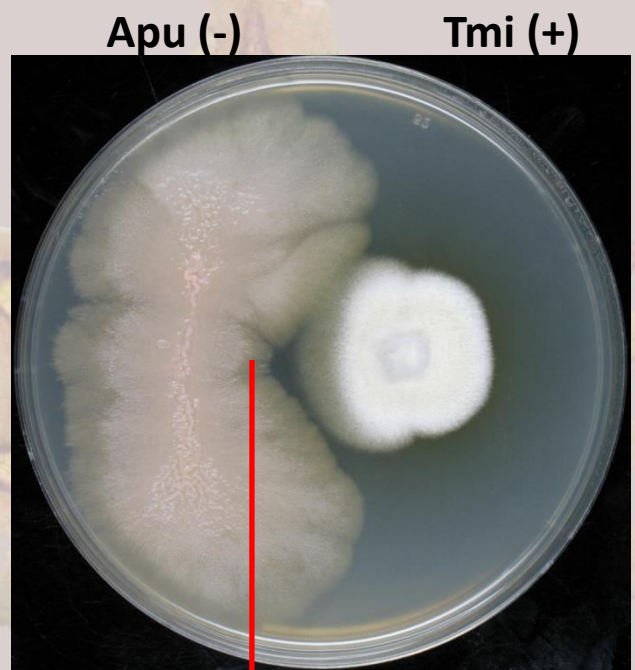
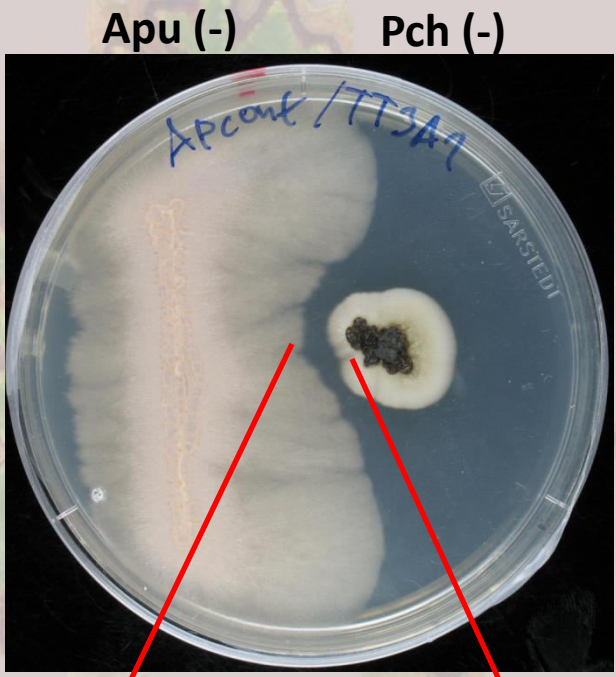


Aureobasidium pullulans (Apu)

- Widespread occurrence: soil, water, air, plants
- Not a plant pathogen (postharvest rotting)
- Promising biocontrol agent against pathogenic fungi
- Industrial producer of pullulan
 - Pch and Tmi also produce pullulan as an effector
- What is the mechanism behind the severity-enhancing effect of Apu?
 - Interaction with Esca pathogens?
 - Pullulan production? (poster of Mondello et al.)



Interaction of Apu with Esca pathogens: confrontation tests



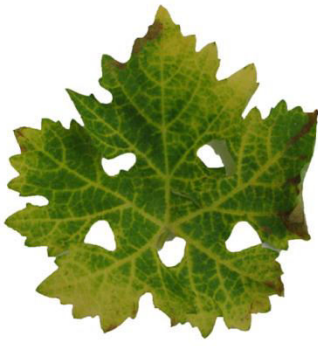







Tests with culture filtrates ✓

Interaction of Apu and Pch *in planta*: results

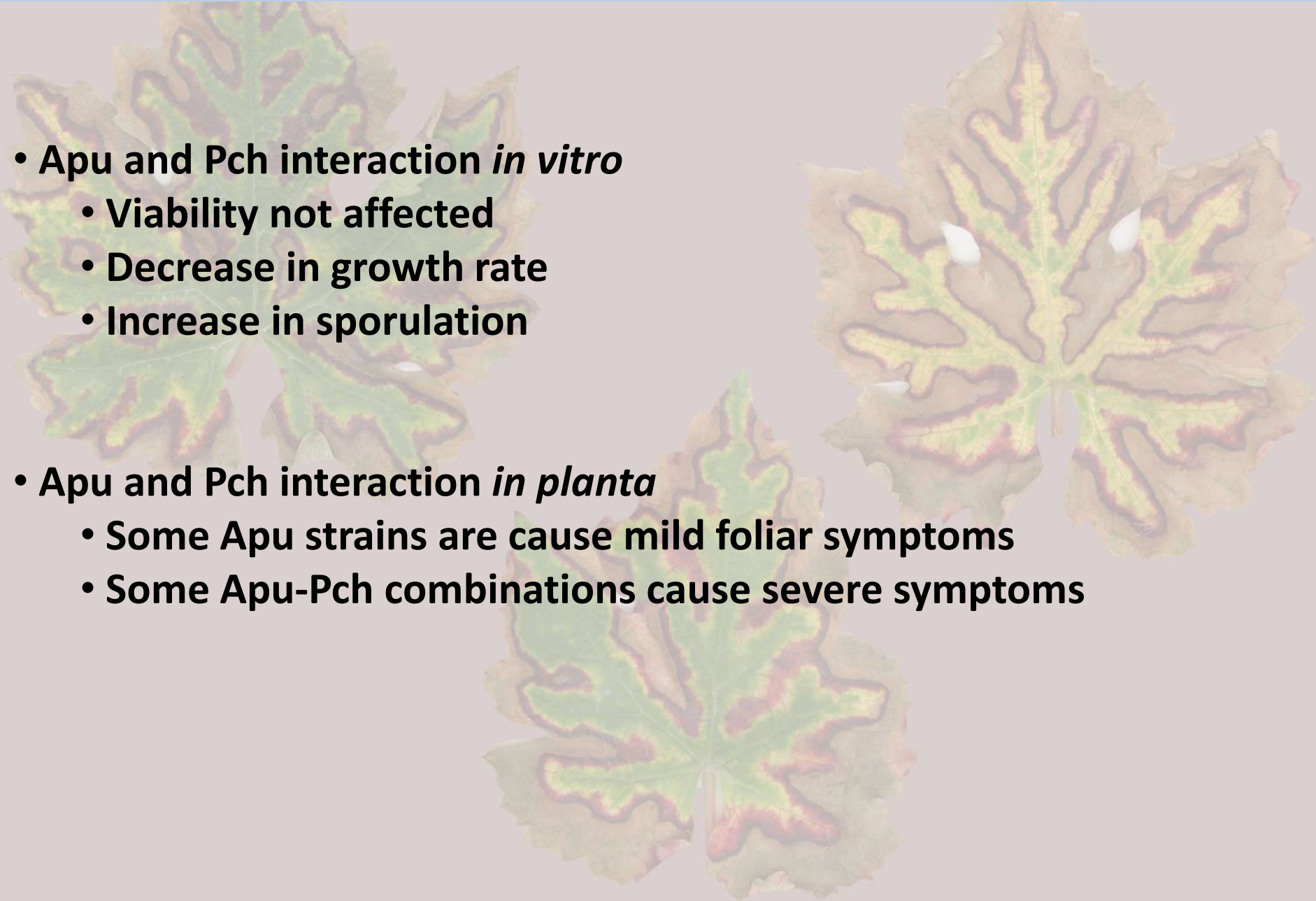
- Some Apu strains caused chlorosis
- Some Apu-Pch combinations led to very severe symptoms
- Strain dependent interaction (both Apu and Pch)



		 <p>Pch compatible</p>	 <p>Pch incompatible</p>
 <p>Apu compatible</p>			
 <p>Apu incompatible</p>			

Proposed modes of action

- **Apu and Pch interaction *in vitro***
 - **Viability not affected**
 - **Decrease in growth rate**
 - **Increase in sporulation**
- **Apu and Pch interaction *in planta***
 - **Some Apu strains are cause mild foliar symptoms**
 - **Some Apu-Pch combinations cause severe symptoms**



Cooperations between URCA and EKE



- Cost Action FA1303
- European network of GTD-related researches
 - Pathogen characterization
 - Epidemiology
 - Microbial ecology
 - Host-pathogen interactions
 - Disease management



- Distribution of knowledge about GTDs
 - Identification of efficient practices
 - Cooperation of research groups
 - Communication with vinegrowers



- Establishment of a double training in France and Hungary for Viticulture and Oenology Engineering students

The image features three maple leaves arranged in a triangular pattern against a light gray background. Each leaf is overlaid with a thermal or infrared image, showing a color gradient from green (cooler) to yellow and red (warmer). The thermal patterns are highly detailed, showing the veins and the edges of the leaves. The text "Thank you for your attention!" is centered in a bold, black, sans-serif font across the middle of the leaves.

Thank you for your attention!