Effect of Growth Rate on *Amylostereum* spp. Fungus by Terpenes

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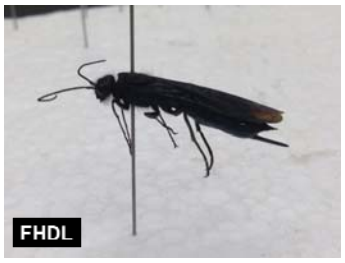
Background

- *Sirex noctilio* is a woodwasp associated with *Amylostereum* spp. fungi, white rot of wood
- Once a tree has been attacked by a *Sirex* spp. wasp, the tree begins to exhibit defensive behavior.
  - external defense
  - chemicals defense- oleoresins, terpenes



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Objectives

To identify the effect that different terpenes emitted by *Pinus* spp. have on the growth rates of *Amylostereum* spp. fungal isolates from around the world

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Study Design

- Atmospheric Trial
  - Atmospheric chambers (paint cans)
  - Glass petri dishes, no lids
  - Examined how vaporized terpenes affect fungal growth
- Tactile Trial
  - Fungal isolates directly on plastic petri dishes
  - Examined how direct contact of terpenes affects fungal growth

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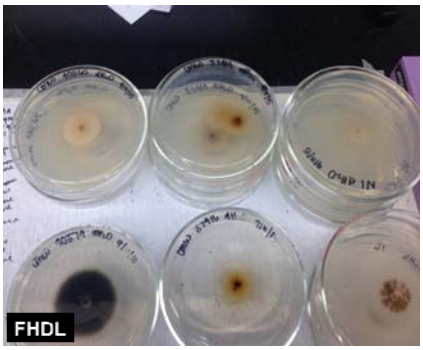
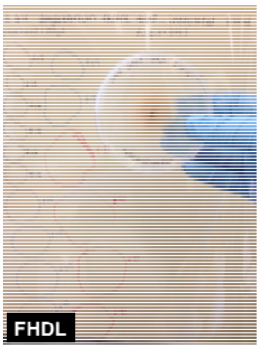
Materials and Methods

Isolation | Inoculation and Growth | Measurements





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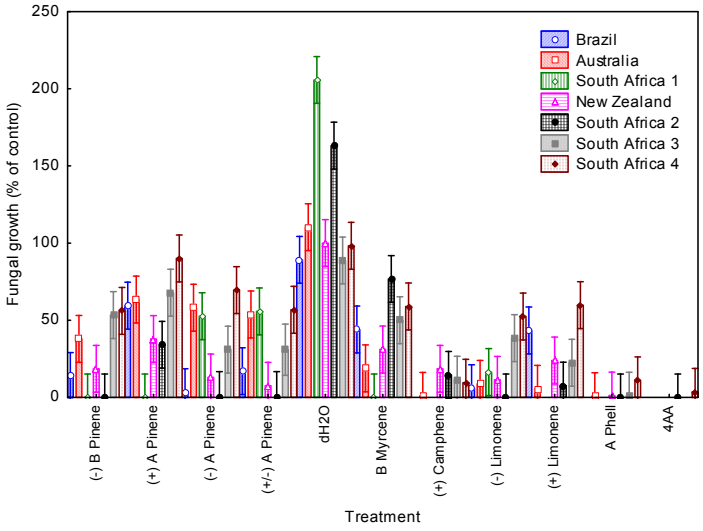
Atmospheric Trial Results



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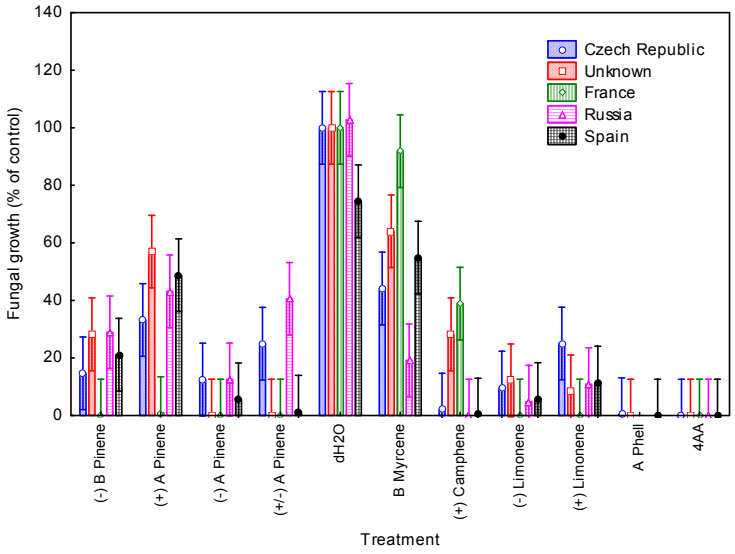
Atmospheric Trial Results



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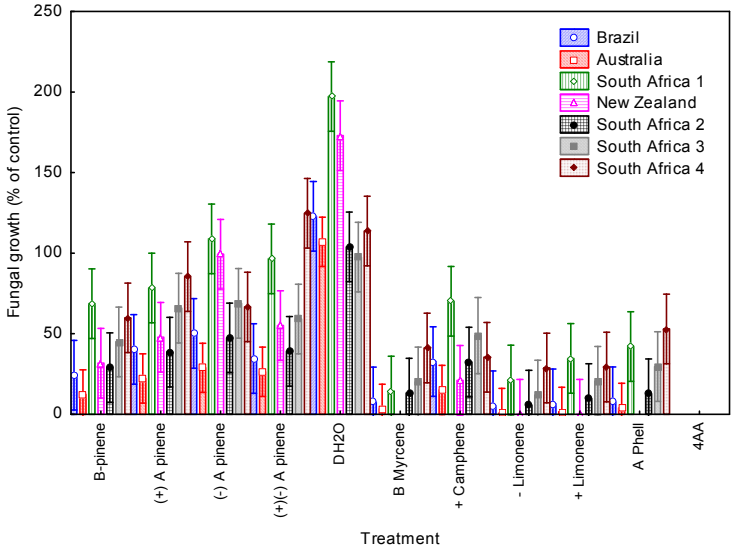
Tactile Trial Results



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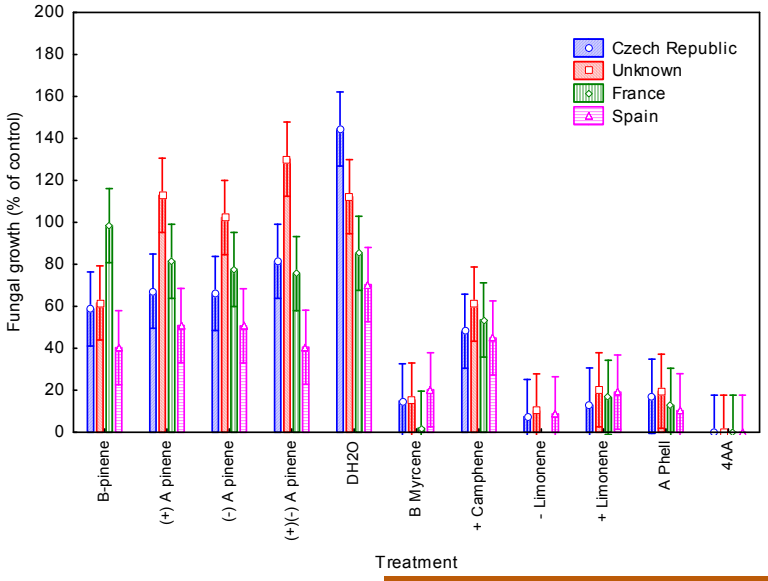
Tactile Trial Results



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Conclusions

- Overall
  - The Northern Hemisphere collected isolates were slower growing compared to the fungal isolates collected from the Southern Hemisphere
  - β- Myrcene significantly increased growth of fungal isolates for the atmospheric trial, but not in direct contact of the compound
- Atmospheric Trial
  - (+) α- Pinene and β- Myrcene resulted in the highest percentage of fungal growth compared to that of the control in all tested fungal isolates
  - The compounds α- Phellandrene and 4AA resulted in nominal growth of the *A. areolatum* Chemical treatments 4AA, (+) Camphene, (-) Limonene, and α- Phellandrene significantly reduced the growth of isolates

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Acknowledgments

Dr. Lori Eckhardt
Dr. Ryan Nadel
Pratima Devkota
Cody Hartzog
Jordan Heath
Wilson Strickland
Ashton Newman
Sarah Peaden

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