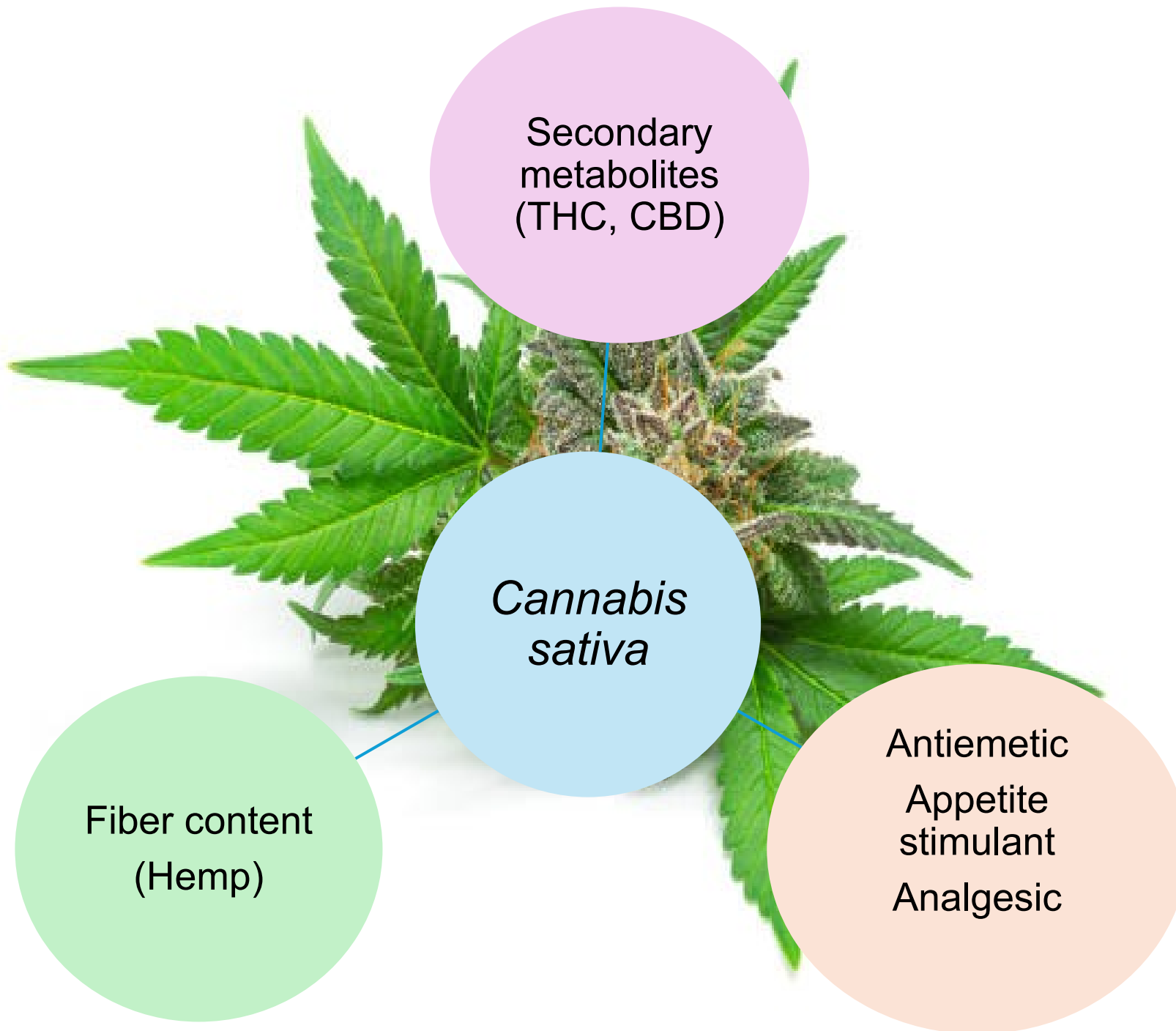


**Biocontrol activity of *Paenibacillus* sp. of phytomicrobiome
against *Botrytis cinerea* in *Cannabis sativa***

Haleema Tariq, Anja Geitmann and Donald Smith



McGill



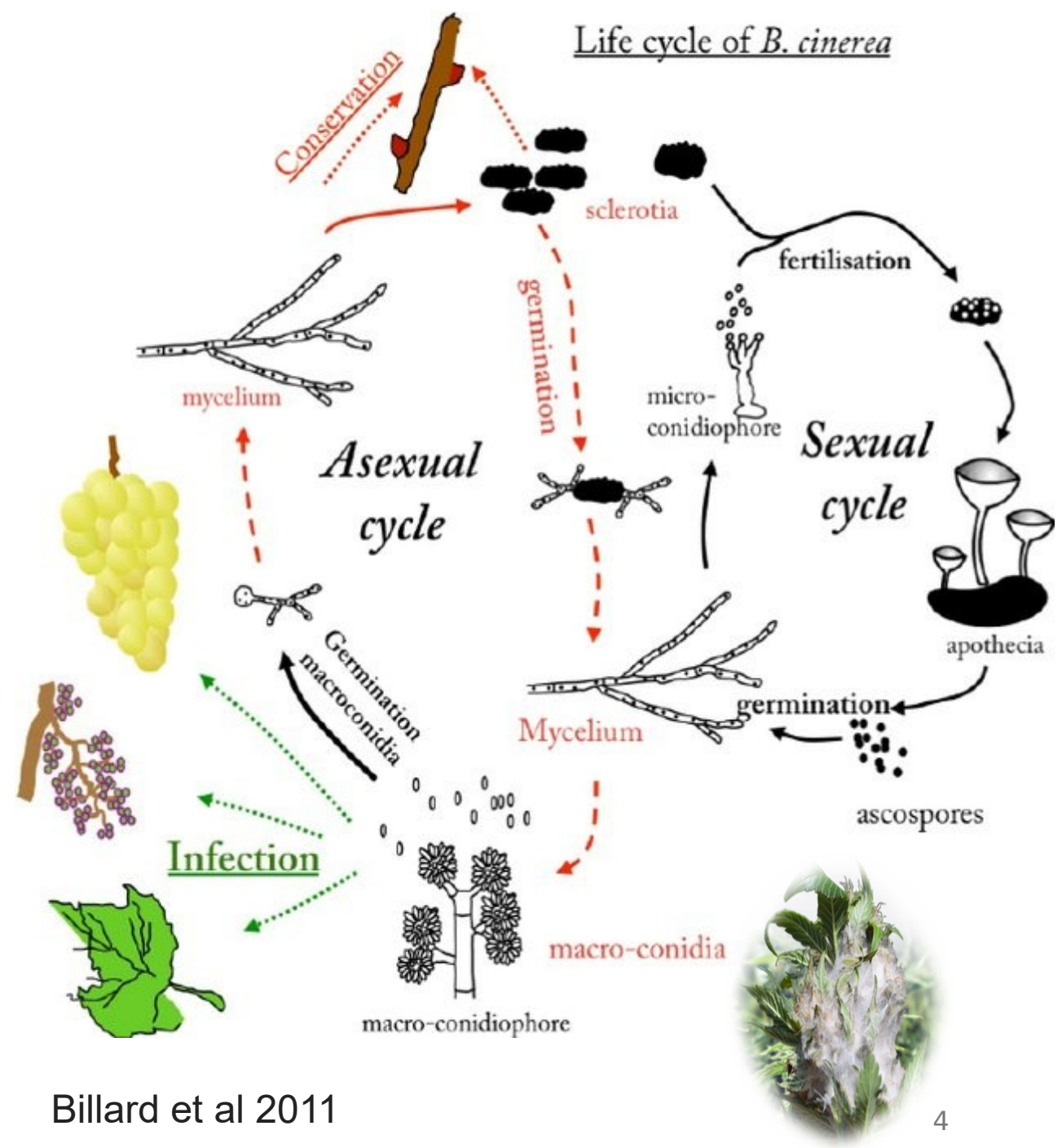


Problem

***Botrytis
cinerea***

Botrytis cinerea

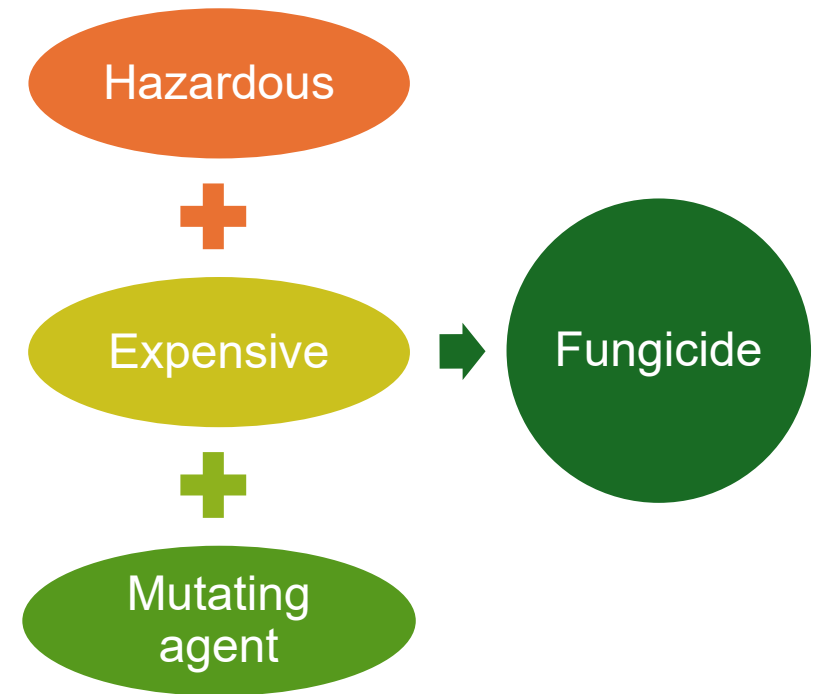
- Necrotrophic fungus that affects cannabis
- Affects both indoor and outdoor cultivation of cannabis
- Turns leaves yellow
- Envelope inflorescence in a fuzzy gray mycelium
- Penetrates cannabis leaves and causes tissue maceration
- Decreases yield by 32% and affects the use of cannabis for medicinal purposes



Billard et al 2011

Solution: Plant beneficial microbes

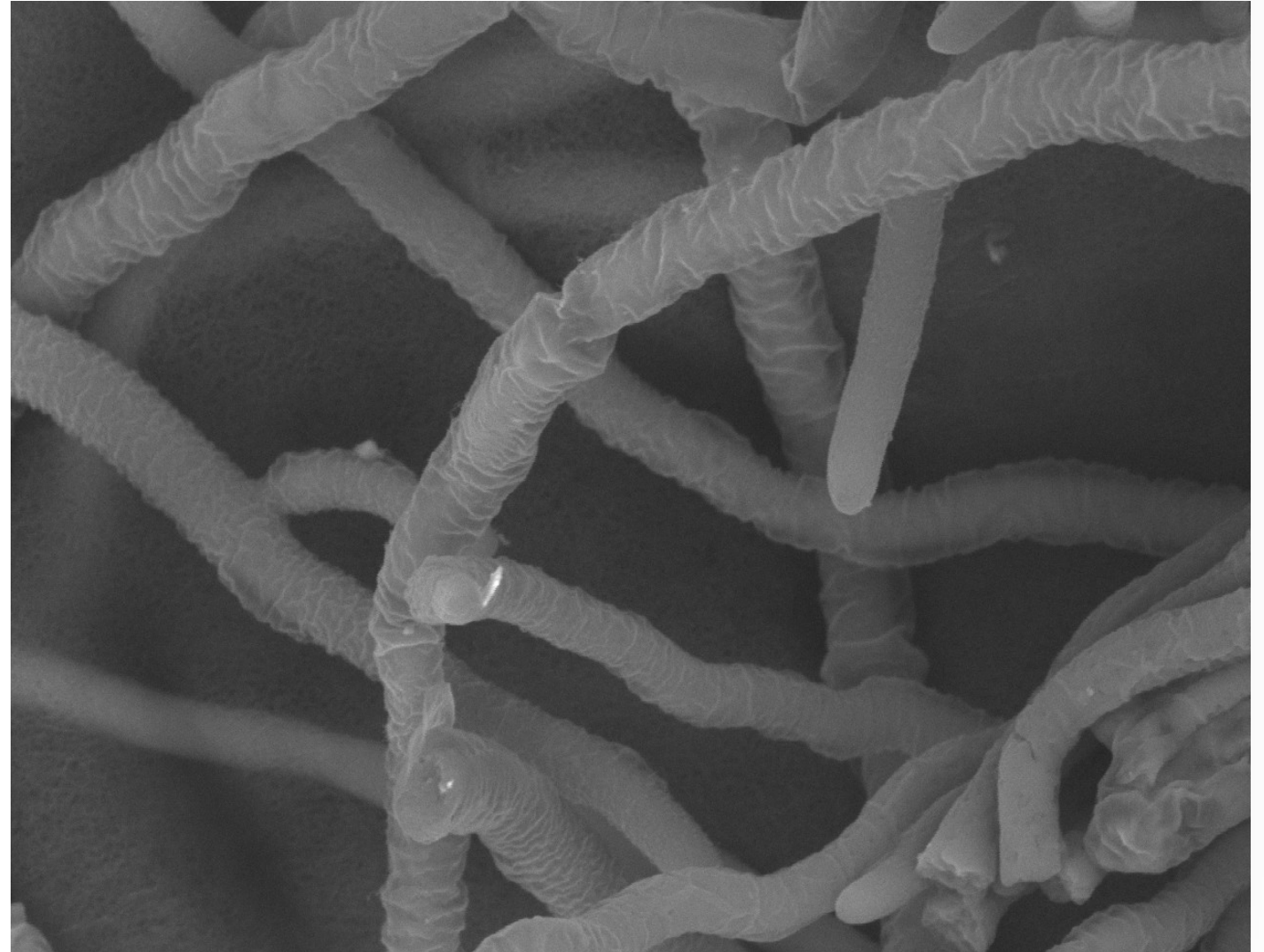
- Biocontrol agent
- Phytohormone
- Siderophore production
- Enhance plant growth
- Induce systemic resistance



Hypotheses

- Plant-beneficial microbes can potentially reduce the symptoms of gray mould and inhibit the growth of its causative agent i.e., *B. cinerea*.

- Plant-beneficial microbes can potentially affect the plant growth, metabolomics, biomass and protein profile of plants.



30um

Research Aims

Visualization of biocontrol activity of the specific microbes against *B. cinerea* under scanning electron microscopy

Evaluation of the cannabinoids and terpene profile of cannabis flowers at the flowering stage in the presence of biocontrol agents

Analysis of quantitative and qualitative changes in the protein profile of plants treated with microbes



In progress

Change in the proteomic profile of the cannabis flower because of plant-beneficial microbes

Evaluating the changes in metabolomic profile of plant

Quantification of biomass

In vivo-Visualization of interaction of *B. cinerea* and biocontrol

Take home message

Biocontrol activity
against *Botrytis
cinerea*

Alter protein profile
of cannabis plant

Beneficial
microbes

Effect cannabinoids
level and biomass of
cannabis

Effect physiological
stress response of
cannabis

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- Dr. Zamir Punja
- Lab members



Canada Research Chair in
Biomechanics of Plant Development





Questions