



# Bacterial cell cultures' effects on the infectivity of *Meloidogyne hapla*

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# Problem!



- Extreme weather events



- Affecting ecosystems
- Threatening food production



- Use of chemical pesticides decrease
- Eco-friendly alternatives are explored

# Problem!

**Plant-parasitic nematodes**

**Root-knot nematodes (RKN)**

*Meloidogyne hapla*

*M. incognita*



# Plant-growth promoting bacteria (PGPB)

Phosphate solubilization

Zinc solubilization

Siderophores

Proteases

Lipases

IAA

ACC deaminase

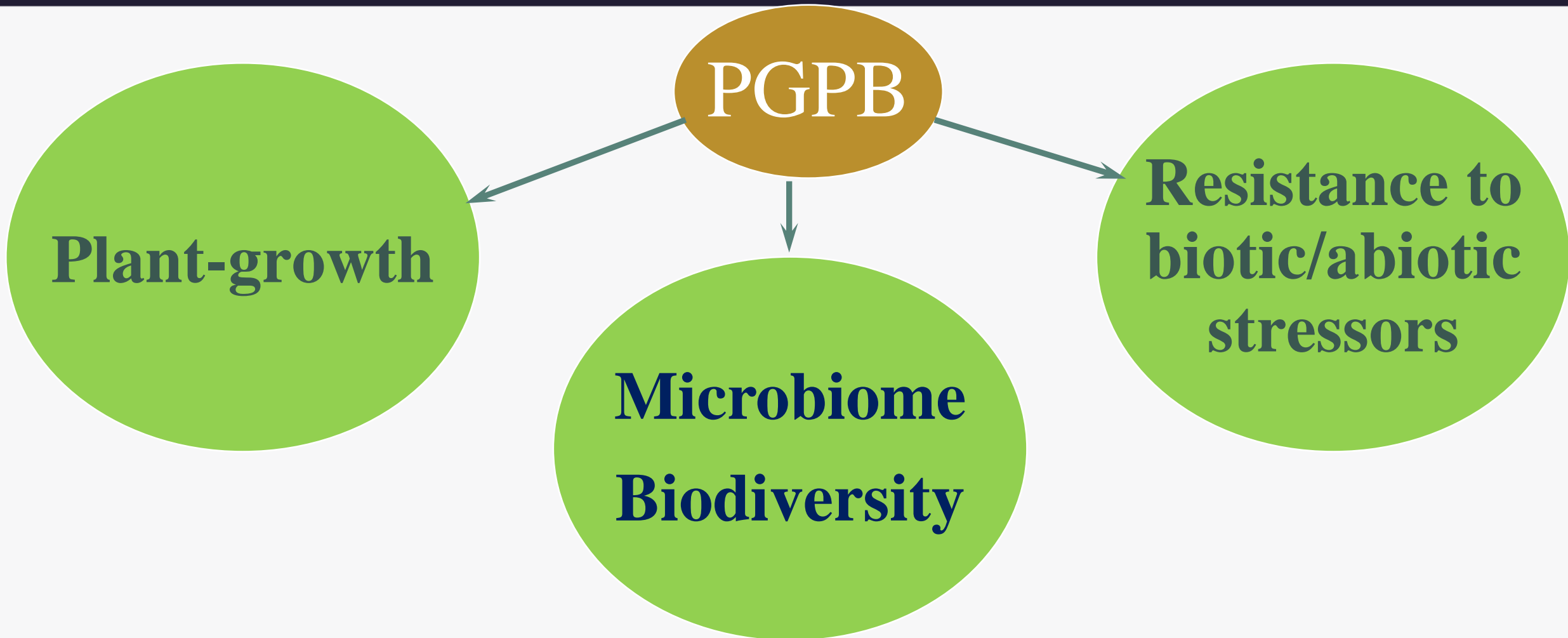
Cellulolytic activity

Chitinolytic activity

Catalase

Fungicidal activity

Nematicidal activity

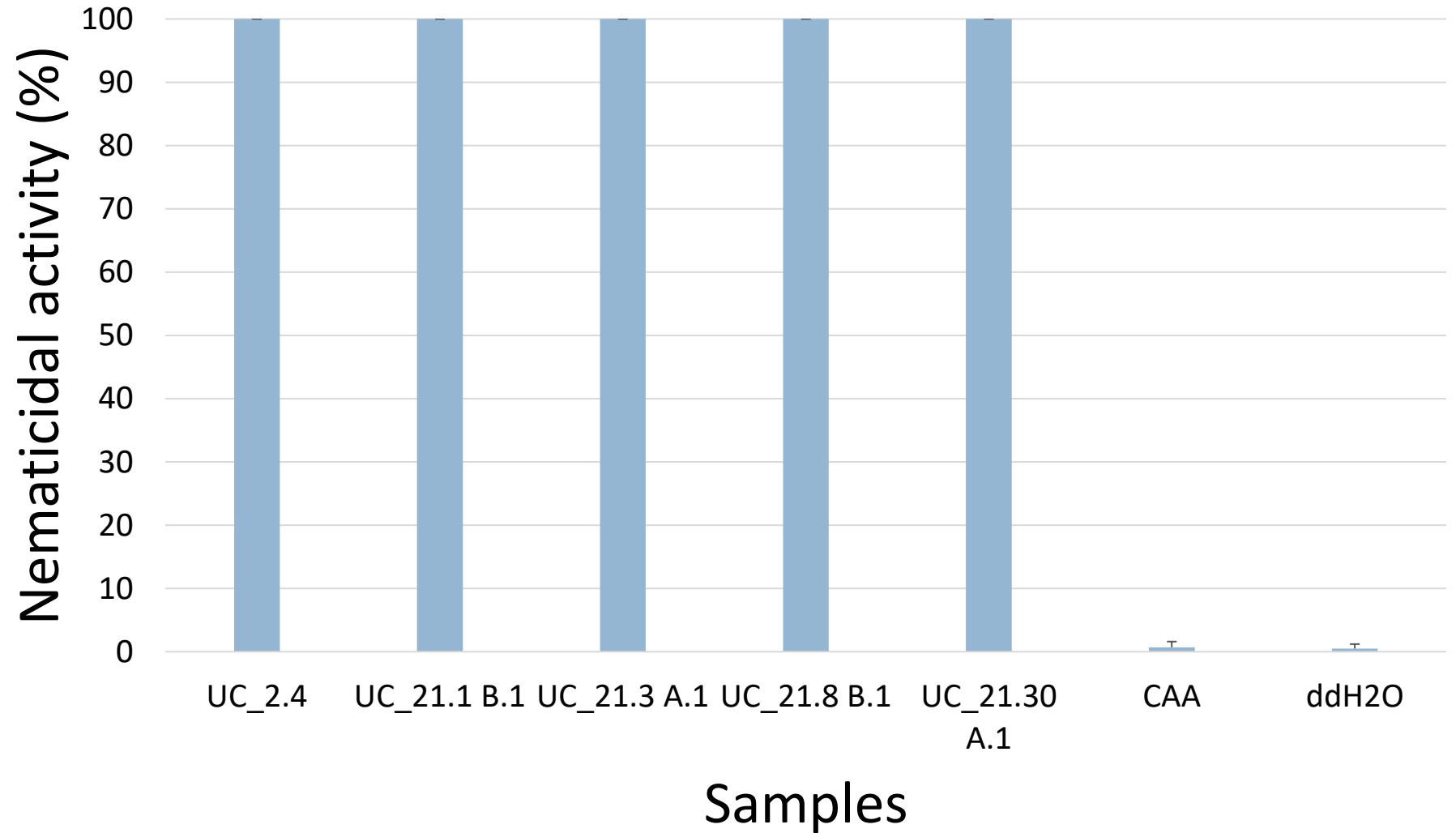


**Valuable for sustainable agriculture**

# Aim

To explore the potential of strains from *Bacillus* and *Pseudomonas*, as biological control agents, against RKN

# Results



## Results

Strain	Identification
UC_2.4	<i>Bacillus</i> sp.
UC_21.30 A.1	<i>Pseudomonas</i> sp.
UC_21.3 A.1	<i>Pseudomonas</i> sp.



## Methods

*Solanum lycopersicum*  
cv. Coração de Boi



1 mL of each bacterial strain (consortium)\*  
300 J2 of *M. hapla* 30' after

300 J2 of *M. hapla* 30' before  
1 mL of each bacterial strain (consortium)\*

Control - 300 J2 of *M. hapla*

5 replicates/treatment  
2 biological replicates

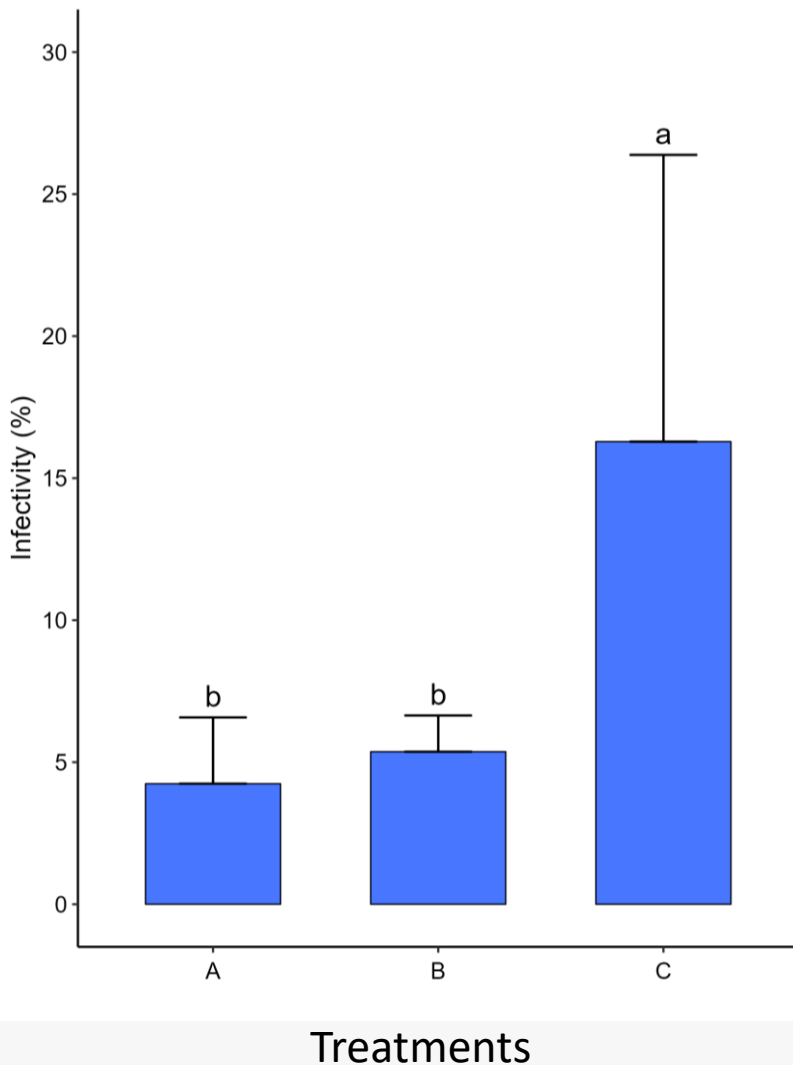
\* adjusted to  $OD_{600} = 0.6$ , equivalent to  $\approx 1 \times 10^8$  CFU mL<sup>-1</sup>

7 days

Uproot

Acid  
fuchsin

J2  
counted



## Results

A. Bacteria consortium and *M. hapla*

B. *M. hapla* and bacteria consortium

C. Control - *M. hapla*

- **Bacterial consortium significantly reduced the infectivity of *M. hapla***
- **Infectivity in the control 3 times more than with the consortium**

## Conclusions

Previous studies shown that this consortium affected RKN motility and mortality but did not affect *Caenorhabditis elegans* and plant growth

- ✓ Treatments with the consortium reduce the infectivity of RKN
- ✓ The consortium has the potential to be a new tool for RKN management

# Thank you!



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