

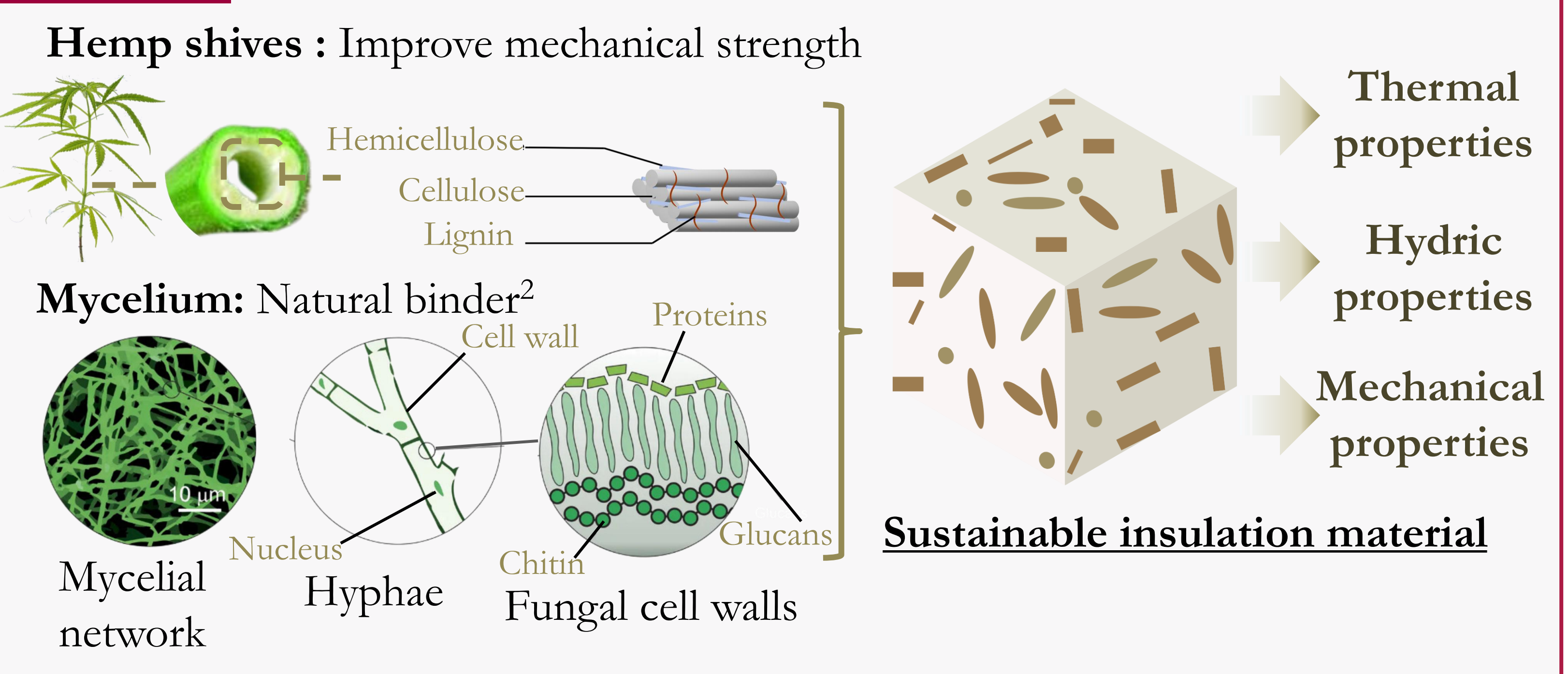
Comparative study of *Ganoderma lucidum* and *Ganoderma resinaceum* mycelium for optimizing biocomposite production

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Mycelium-based biocomposite – Insulation properties– Optimization– Solid-state fermentation

Context

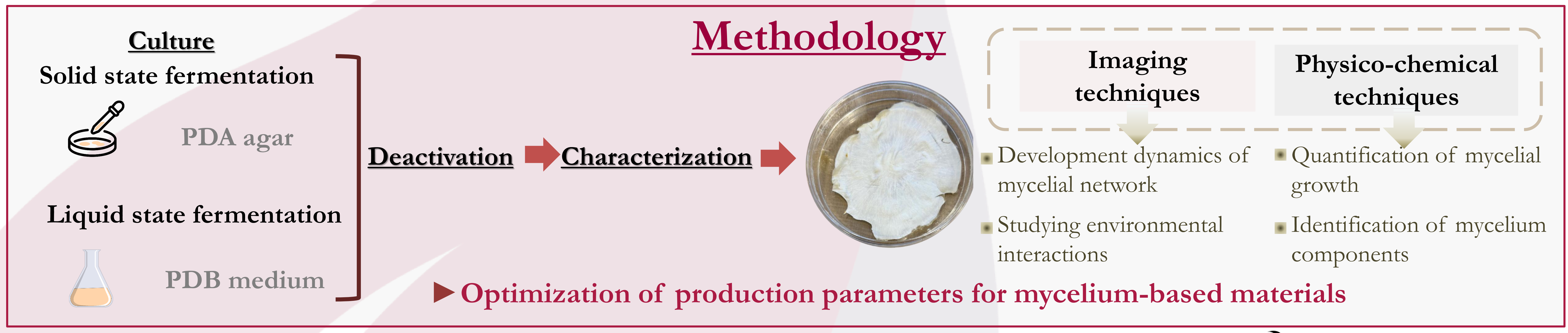
The building sector is a significant contributor to greenhouse gas emissions¹, with the insulation materials used in buildings being predominantly petroleum-based and non-renewable, leading to severe environmental issues. To address this problem, emerging sustainable materials such as Mycelium-Based Composites (MBCs) are being developed as a substitute for traditional insulation materials. MBCs consist of agro-waste particles reinforced by a fungal mycelium network, resulting in a renewable and biodegradable material with promising performances.



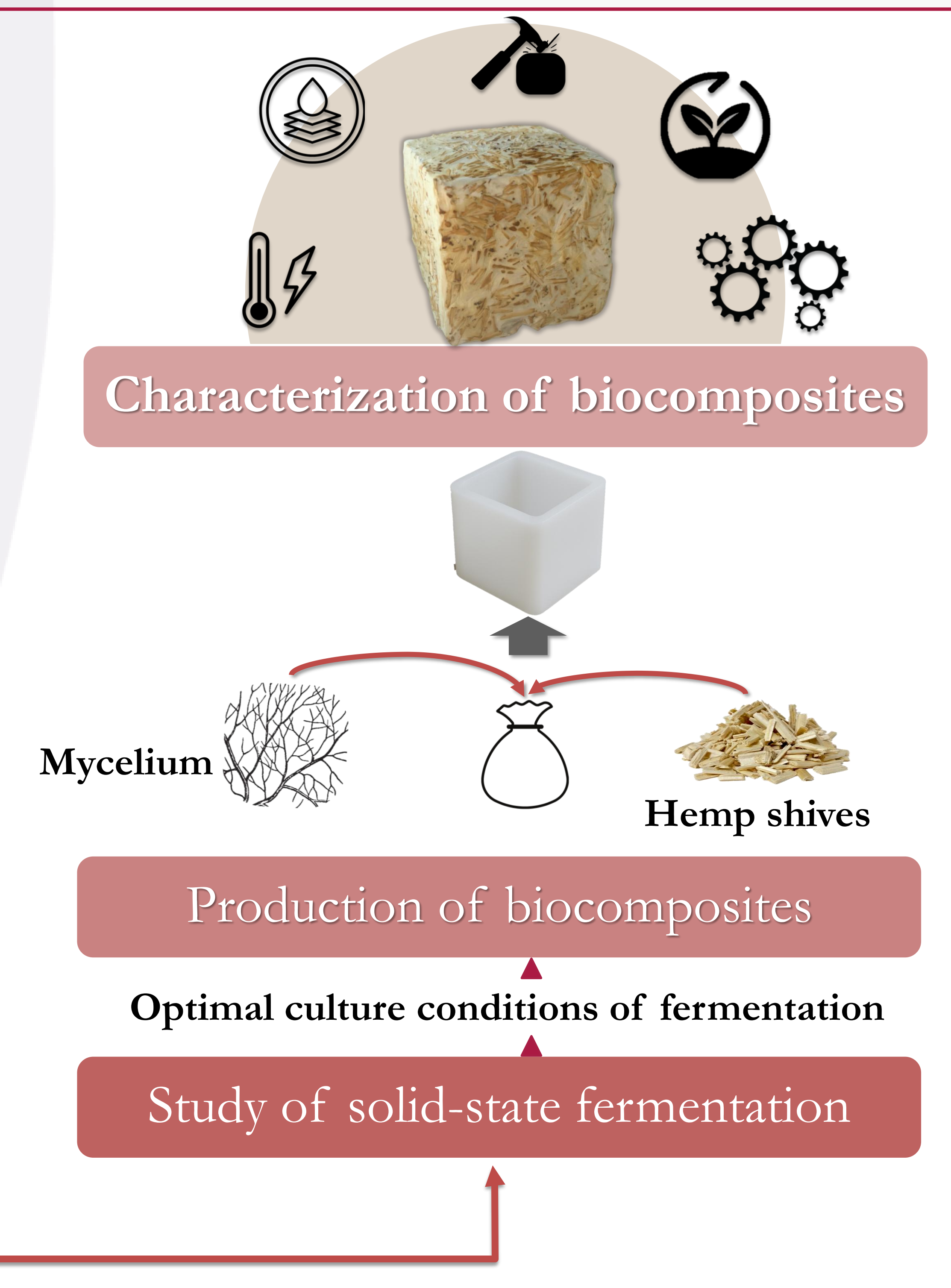
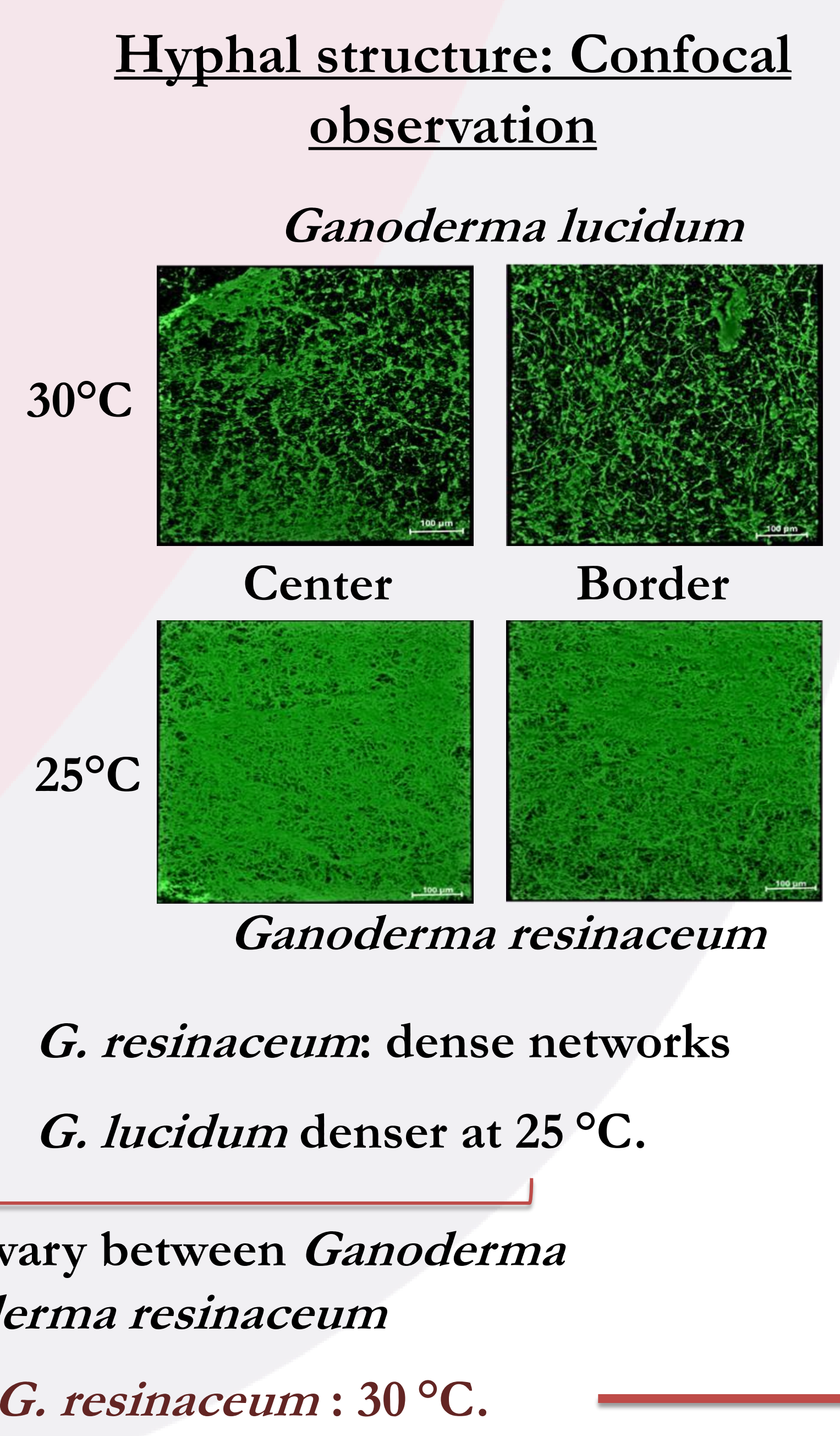
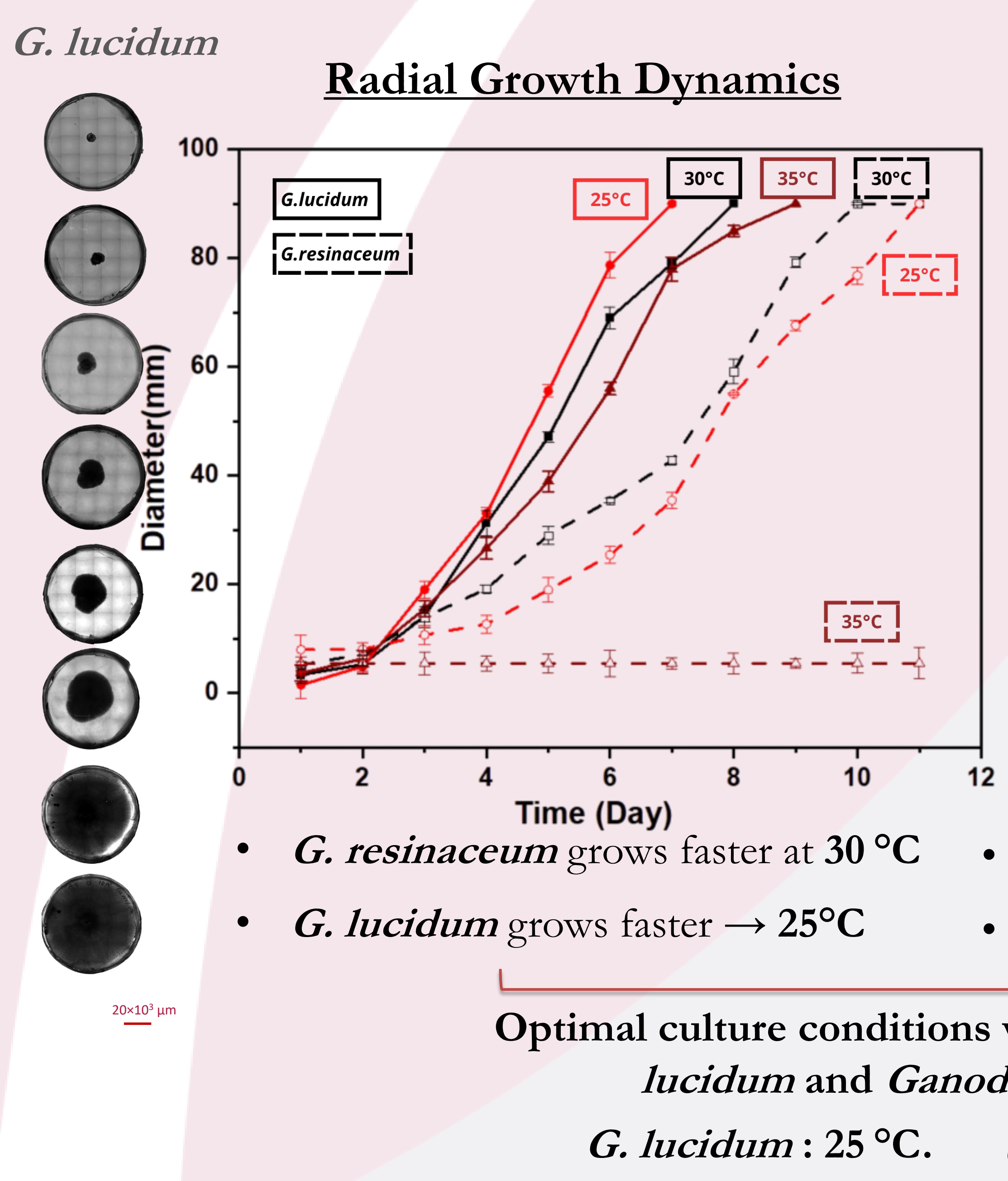
Objective

The objective is to optimize the production of mycelium-based composites with enhanced thermal insulation, mechanical integrity, and moisture buffering capacity, using lignocellulosic biomass such as hemp shives.

Methodology



Results



Conclusion

G. resinaceum:

- Shows fast radial growth at 30 °C.
- Demonstrates structural adapta bility.

► **Promising candidate for biocomposites production.**

References

¹Vašátko, H., Gosch, L., Jauk, J., & Stavric, M. (2022). Basic Research of Material Properties of Mycelium-Based Composites. *Biomimetics*, 7(2), 51.

²Haneef, M., Ceseracci, L., Canale, C., Bayer, I. S., Heredia-Guerrero, J. A., & Athanassiou, A. (2017). Advanced Materials From Fungal Mycelium: Fabrication and Tuning of Physical Properties. *Scientific Reports*, 7(1), 41292.

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