

Taxonomic characterization of lineages of the genus *Ganoderma* with emphasis on morphological and molecular analysis

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INTRODUCTION & AIM

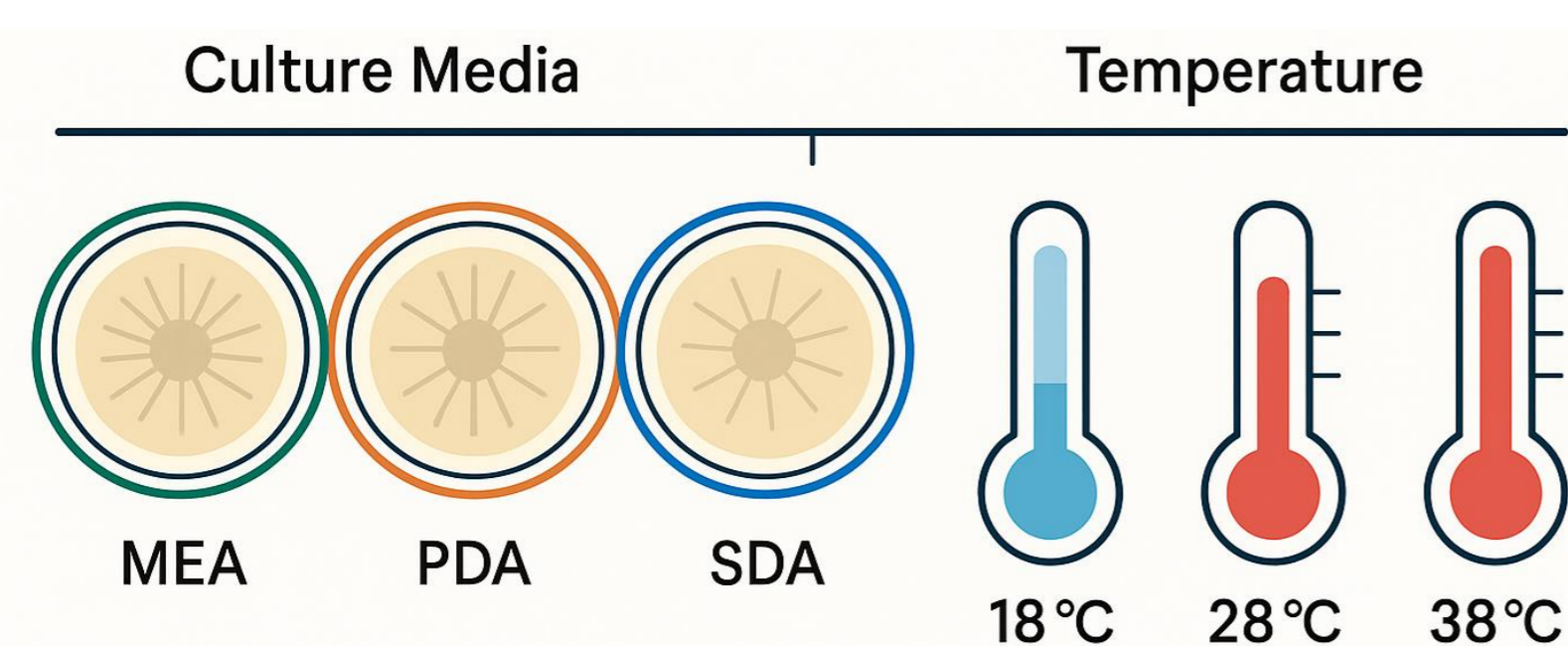
The genus *Ganoderma* (family *Ganodermataceae*) comprises basidiomycete fungi with wide geographic distribution and significant scientific interest. Despite its ecological and biotechnological relevance, the taxonomy of the group remains complex due to the high morphological variability among species, which is strongly influenced by environmental and nutritional factors affecting their phenotypic traits.

AIM- To perform the morphological and molecular characterization of eight *Ganoderma* isolates in order to support taxonomic identification and provide insights into their phylogenetic relationships, contributing to a better understanding of the genus diversity.

METHOD

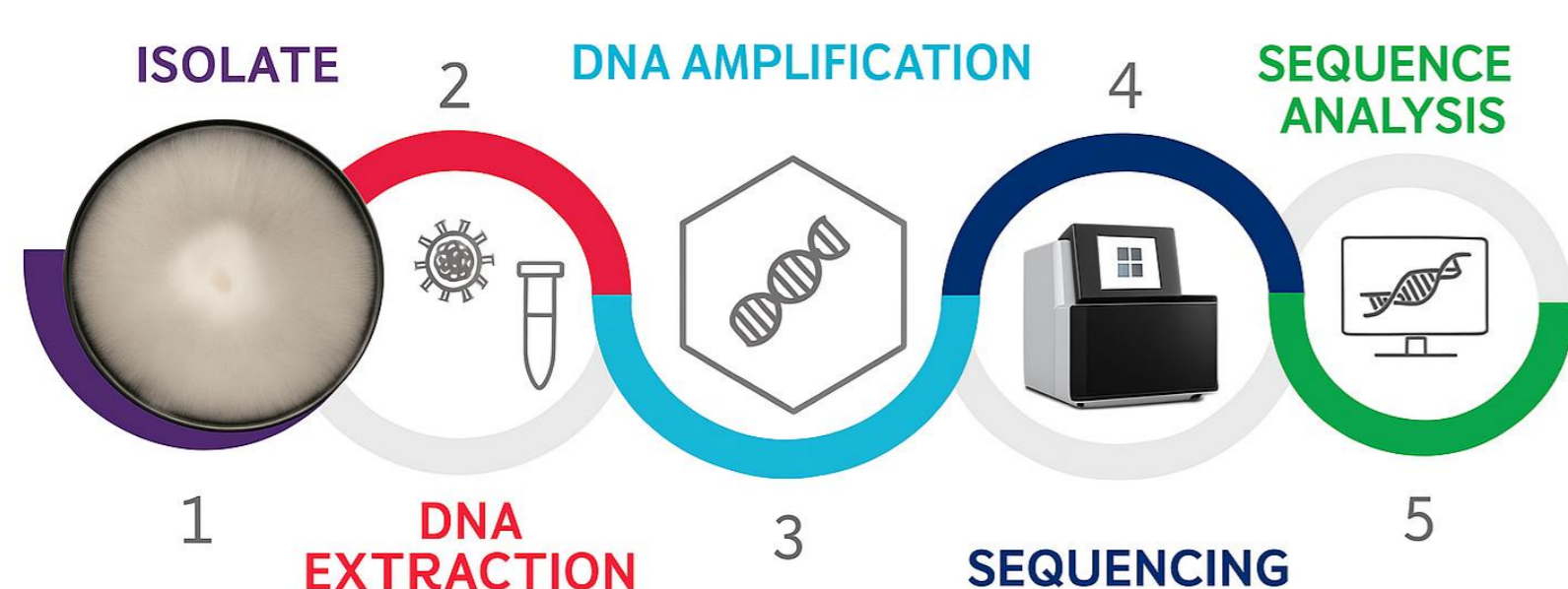
Mycelial Growth

Mycelial growth was evaluated in different culture media (MEA, PDA, and SDA) and at three temperatures (18 °C, 28 °C, and 38 °C) to analyze the physiological behavior of the isolates.



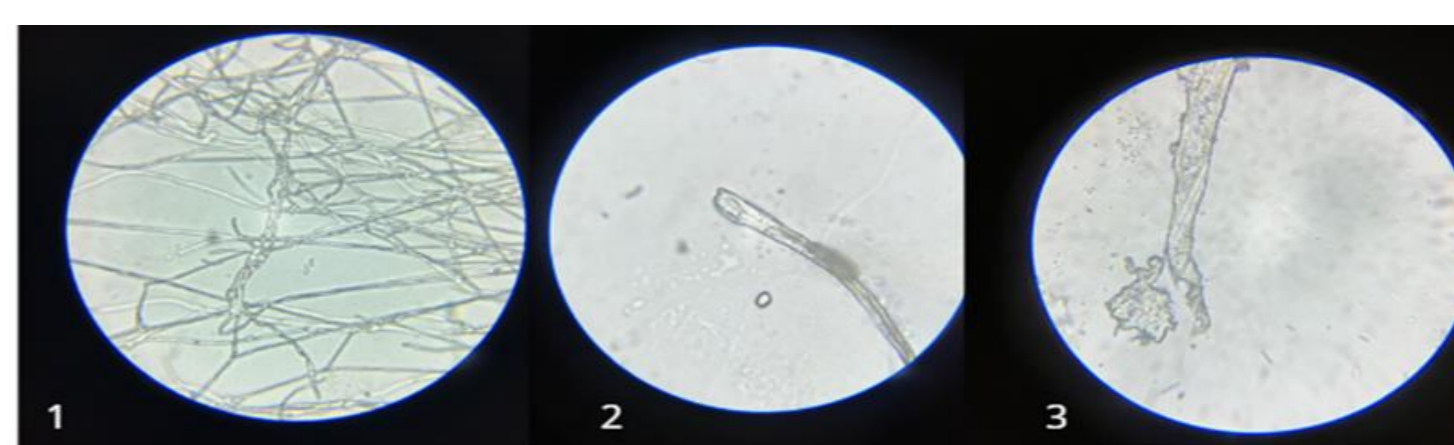
Molecular Analysis

Genomic DNA extraction was performed according to the protocol of Vicente *et al.* (2008). The ITS region of the ribosomal DNA was then sequenced, which serves as a molecular marker for fungal identification and phylogenetic analysis.



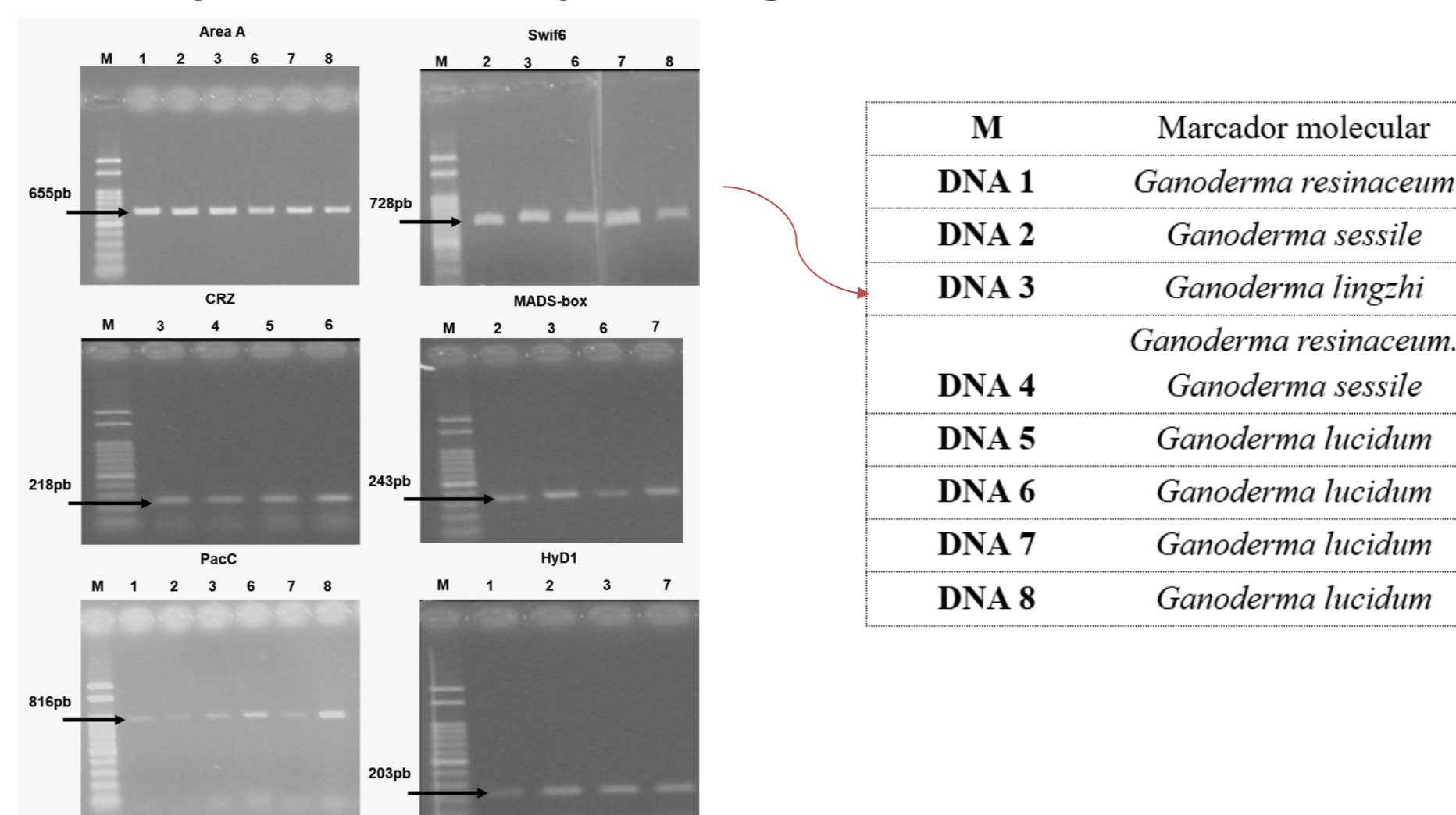
RESULTS & DISCUSSION

Microscopic characteristics of *Ganoderma*

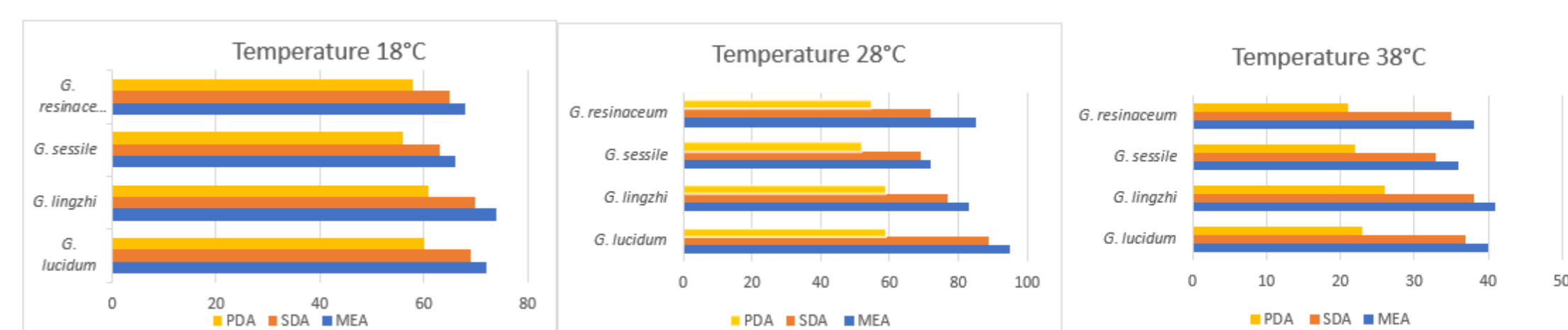


Generative hyphae: these are filamentous, hyaline hyphae with septa and branching. They are responsible for the vegetative growth of the fungus.

Analysis of ITS Sequencing of *Ganoderma* Strains



Physiology of *Ganoderma* strains: temperature vs. mycelial growth (mm)



The physiological analysis showed that medium composition and temperature (28 °C) significantly influenced mycelial growth, especially in *G. lucidum* and *G. lingzhi*, highlighting species-specific physiological profiles. These results also demonstrate that morphology alone is insufficient for accurate *Ganoderma* species delimitation.

CONCLUSION

These data show that the traditional morphology-based approach is limited for delimiting *Ganoderma* species. The integration of microscopic characteristics and molecular data is essential to ensure accurate identification.

FUTURE WORK / REFERENCES

