



Exploring the Therapeutic Potential of *Ganoderma casuarinicola*: A Promising Medicinal Mushroom

Jesika Upadhyay¹, Sandipta Ghosh and Nilanjan Chakraborty*

Department of Botany, Scottish Church College, Kolkata 700006, India

*Correspondence: nilanjanchak85@gmail.com

Introduction

- Public awareness of drug safety has led to a preference for medicinal natural products
- Mushrooms offer versatile opportunities for the development of new drugs leads
- *Ganoderma* being a prolific producer of mycochemical, we aimed extracting bioactive components from fruiting bodies of *Ganoderma casuarinicola* and evaluating its in vitro Phytochemical estimation, antioxidant capacity and antimicrobial efficacy.

Materials and methods

Ganoderma casuarinicola

Dried basidiocarp



Infusion

Decoction

Hydroalcohol

Phytochemical Estimation

Antioxidant property

Antibacterial efficacy

Conclusion and future prospective

- ❖ *G. casuarinicola* has been confirmed to possess both antioxidant and antibacterial properties, making it a potential candidate for medicinal applications.
- ❖ The aqueous and hydroalcoholic fractions of *G. casuarinicola* have shown significant phytochemical composition and antioxidant activity, suggesting their potential use as dietary supplements and functional foods to combat oxidative stress-related issues.
- ❖ Further research is required to fully comprehend the medicinal potential of *G. casuarinicola*, including determining optimal dosage, safety, and effectiveness for specific health conditions, in order to harness its benefits effectively

References

- ❖ Valverde, M. E., Hernández-Pérez, T., & Paredes-López, O. (2015). Edible Mushrooms: Improving Human Health and Promoting Quality Life. In International Journal of Microbiology (Vol. 2015, pp. 1–14).
- ❖ X. W. Zhou, K. Q. Su, and Y. M. Zhang, "Applied modern biotechnology for cultivation of *Ganoderma* and development of their products," *Applied Microbiology and Biotechnology*, vol. 93, no. 3, pp. 941–963, 2012.
- ❖ Ren, L., Zhang, J., & Zhang, T. (2021). Immunomodulatory activities of polysaccharides from *Ganoderma* on immune effector cells. In Food Chemistry (Vol. 340, p. 127933).

Results

Table 1: Phytochemical estimation of extracts of *G. casuarinicola*

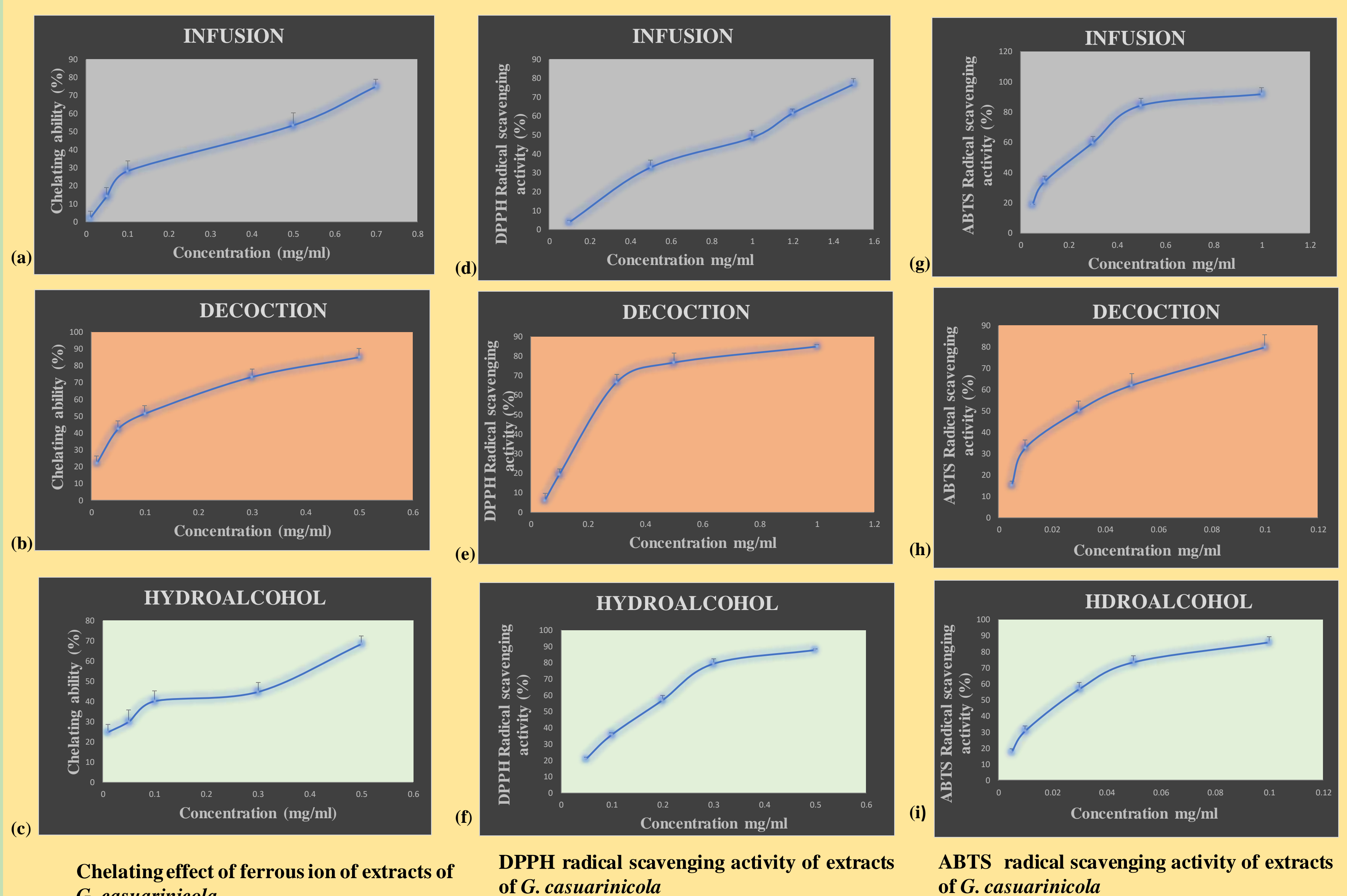
Phytochemical Parameters	Extracts		
	Infusion	Decoction	Hydroalcohol
Phenol (µg GAE/ mg of extract)	33.51 ± 2.01	36.66 ± 3.33	40.66 ± 4.041
Ascorbic acid (µg/mg of extract)	19.44 ± 2.4	36.1 ± 4.8	72.2 ± 1.6
β- Carotene (µg/100ml)	0.112 ± 0.08	0.213 ± 0.08	0.106 ± 0.00
Lycopane (µg/100ml)	0.117 ± 0.00	0.147 ± 0.00	0.158 ± 0.01

Table 2: Antibacterial efficacy of extracts of *G. casuarinicola*

Name of the bacteria	Extracts		
	Infusion (IC ₅₀ in mg/ml)	Decoction (IC ₅₀ in mg/ml)	Hydroalcohol (IC ₅₀ in mg/ml)
<i>Bacillus subtilis</i>	67 ± 2.06	49 ± 0.6	38 ± 0.8
<i>Staphylococcus aureus</i>	NA	49 ± 0.4	37 ± 1.9
<i>Escherichia coli</i>	67.5 ± 0.6	47 ± 2.14	36 ± 1.0
<i>Salmonella typhi</i>	70 ± 0.21	38 ± 0.7	29 ± 0.4

Table 3: Antioxidant potential of *G. casuarinicola* extracts

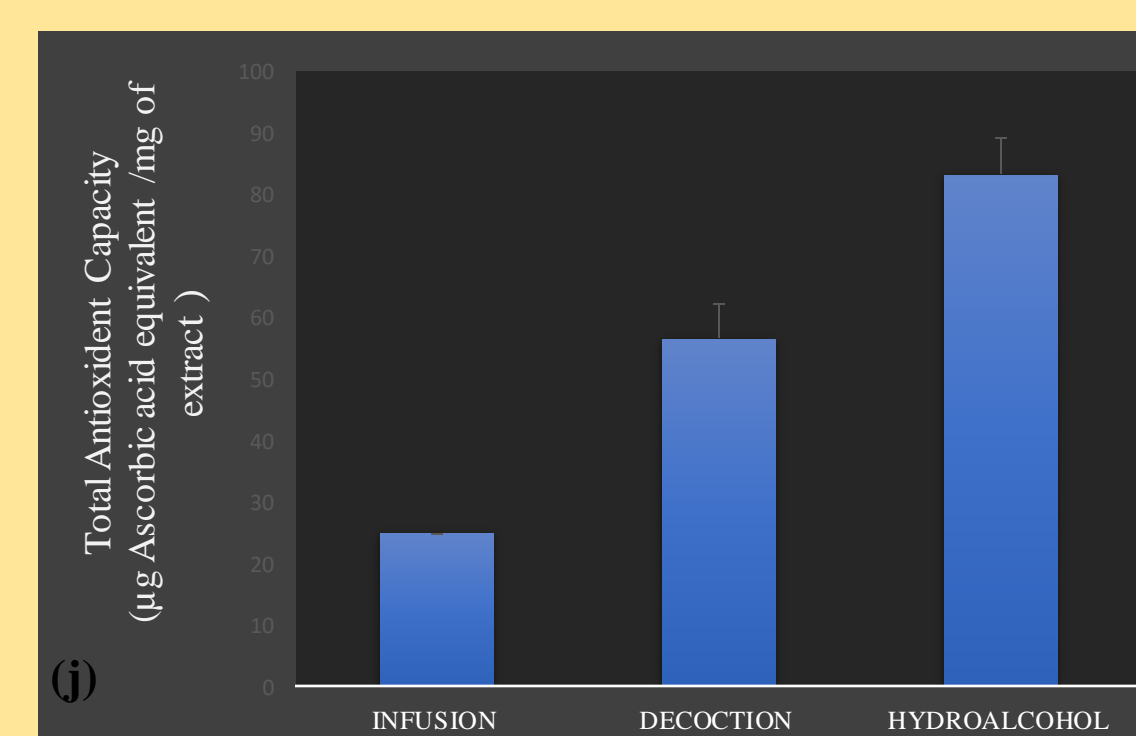
Antioxidant Parameters	Extract		
	Infusion	Decoction	Hydroalcohol
EC ₃₀ values (mg/ml) DPPH radical scavenging activity	1.4 ± 0.75	0.3 ± 0.79	0.24 ± 3.7
ABTS radical scavenging activity	0.2 ± 0.005	0.034 ± 0.06	0.03 ± 0.1
Chelating effect of Ferrous ion	0.1 ± 2.6	0.46 ± 1.3	0.34 ± 0.7
Total antioxidant capacity (µg Ascorbic acid equivalent/mg of extract)	25 ± 0.00	56.66 ± 5.7	83.33 ± 5.7



Chelating effect of ferrous ion of extracts of *G. casuarinicola*

DPPH radical scavenging activity of extracts of *G. casuarinicola*

ABTS radical scavenging activity of extracts of *G. casuarinicola*



Total antioxidant capacity of extracts of *G. casuarinicola*

ACKNOWLEDGE-MENT

I would like to express my gratitude to Department of Botany, Scottish church college for providing me the opportunity to work on this topic and enrich my knowledge.