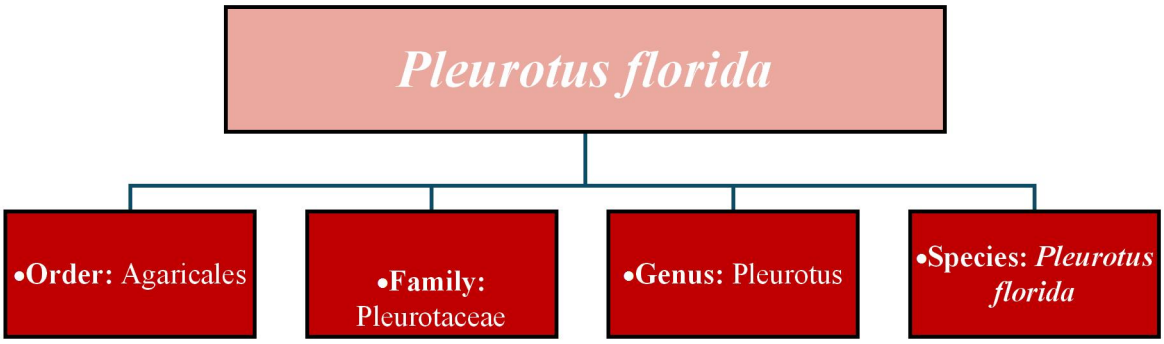
White Oyster Mushroom



Habit and Habitat

Pleurotus florida, commonly known as the white oyster mushroom, is a basidiomycete known for its edible and highly nutritious basidiocarp. It grows on a variety of lignocellulosic substrates, including paddy straw, sawdust, rice husks, and agricultural waste. It is known for its rapid colonization, efficient substrate utilization, and ability to grow in clusters, making it a popular choice for commercial cultivation.

Morphology

- Cap (Pileus): Pure white, fan-shaped, with a smooth surface and wavy margins, typically 5-15 cm in diameter.
- Stipe (Stalk): Short, thick, lateral or absent, depending on growth conditions, with a dense, fibrous texture.

Nevta - Mahapura Road, Jaipur - 302029, Rajasthan, India Tel: +91 8299884641

Email: sciencedept@sxcjpr.edu.in Website: www.sxcjpr.edu.in/departments/department-of-science/

- Gills (Lamellae): White, densely packed, and decurrent, extending down the stipe when present.

Reproduction

- Spore Characteristics: Smooth, cylindrical, and hyaline, producing white spore prints.
- Spore Germination: Typically occurs within 48-96 hours under favorable conditions, forming a dense, pure white mycelium.
- Mycelium Development: The primary mycelium is clampless and sterile, while the secondary mycelium, formed by the fusion of compatible primary mycelia, is fertile and features clamp connections.

Nutrient Content

Sr. No.	Composition	Percentage (%)
1	Moisture	88.5%
2	Protein	55.3%
3	Carbohydrates	27.1%
4	Fat	0.5%
5	Ash	1.3%

Medicinal Properties

Antioxidant Activity

- *Pleurotus florida* exhibits significant antioxidant properties. Hydroethanolic extracts have demonstrated potent free radical scavenging abilities, with an IC_{50} value of 41.17 ± 1.42 µg/mL in DPPH assays. These effects are attributed to its high content of phenolic compounds and flavonoids.

Antidiabetic Potential

- Studies have shown that methanolic extracts of *P. florida* possess antidiabetic properties. In vitro assays revealed significant α-amylase ($94.93 \pm 1.75\%$) and α-glucosidase ($84.90 \pm 0.42\%$) inhibitory activities at 1000 µg/mL. In vivo experiments on diabetic rats demonstrated improved blood glucose levels and lipid profiles.

Hypocholesterolemic and Antiatherogenic Effects

- Feeding *P. florida* to hypercholesterolemic rabbits resulted in lowered plasma and liver lipid levels. There was an increase in HDL cholesterol/total cholesterol and HDL cholesterol/LDL cholesterol ratios, indicating its potential in preventing atherosclerosis.

Antimicrobial Properties

- Ethanolic extracts of *P. florida* have demonstrated antimicrobial activity against various pathogens, including *Streptococcus* species and *Epidermophyton floccosum*. The extracts showed inhibition zones up to 23 mm and exhibited minimum inhibitory concentrations (MICs) as low as 25 mg/mL.

Anticancer Activity

- Ethanolic extracts of *P. florida* have shown cytotoxic effects against HeLa cervical cancer cells. Treatment led to significant inhibition of cell proliferation, induction of apoptosis, and cell cycle arrest at the G_0 /G_1 phase. In vivo studies in mice demonstrated a 66.72% reduction in tumor size and an 87.44% reduction in tumor weight.

Anthelmintic Activity

- Hydroethanolic extracts of *P. florida* have exhibited anthelmintic properties. In vitro studies using earthworms showed dose-dependent paralysis and death, suggesting its potential in controlling parasitic infections.

References

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