

Psychedelic Mycology in Goa, India: A Review of the Environmental, Economic, and Regulatory Case for Sustainable Development of Psilocybin-Containing Fungi

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ABSTRACT

Goa's mushrooms get plenty of attention at the dinner table and almost none in the lab. That gap is the starting point for this review. I look at what psilocybin-containing fungi might mean for Goa, India, both as a conservation asset and, cautiously, as a mental health resource, balancing established fact against working hypothesis. The clinical case for psilocybin in depression, PTSD, anxiety, and substance use disorders has strengthened considerably over the past decade, while the commercial side of psychedelic medicine—however volatile—continues to attract significant capital and market consolidation. Less clear is what actually grows in the Western Ghats near Goa. The psilocybin-producing species documented so far come from Kerala, not Goa itself; much of this paper is therefore a case for empirical investigation rather than a claim of established local presence. I also examine India's unresolved legal position on natural psilocybin mushrooms, which several High Courts have recently addressed without reaching a unified consensus. Based on these factors, I propose two concrete initiatives for Goa: a strictly survey-first "myco-reserve" designation to protect fungal habitat while verifying local species, and a psilocybin-assisted therapy and research unit under the Institute of Psychiatry and Human Behaviour, operated as a formal clinical program under explicit multi-agency licensing. Done right, this approach connects forest conservation, psychiatric care, and local economic development under the statutory framework of India's Biological Diversity Act.

Keywords: psilocybin, mycology, Goa, Western Ghats, psychedelic-assisted therapy, myco-reserve, Biological Diversity Act, NDPS Act, clinical research, conservation

Introduction

I trained at Goa Medical College. Long before I knew anything about psilocybin, I knew Goa's forests as places people went to forage, not to study. That dynamic has shifted elsewhere. Since the early 2000s, psychedelic compounds have moved from countercultural curiosity to rigorous clinical research. Psilocybin in particular has drawn serious study from institutions like Johns Hopkins University and Imperial College London, whose trials report meaningful improvements in depression, PTSD, anxiety, and substance use disorders (Carhart-Harris & Goodwin, 2017; Griffiths et al., 2016). The underlying data is no longer fringe science, and multiple international jurisdictions are actively constructing formal regulatory pathways for these therapies.

This review connects that global shift to the fungal biodiversity of the Western Ghats—the mountain range bordering Goa and a recognized global biodiversity hotspot. It harbors hundreds of documented fungal species, including the culturally prominent *Termitomyces* genus. For psilocybin-producing species specifically, the confirmed record comes entirely from Kerala: a 2002 taxonomic survey documented eight *Psilocybe* species there, including two newly

described (*P. keralensis* and *P. wayanadensis*) and the first Indian records of *P. subaeruginascens*, *P. subcubensis*, and *P. cubensis* (Thomas et al., 2002).

No equivalent survey work exists for Goa. Ecological overlap is plausible given the shared Western Ghats ecosystem, but inference is not identification. Nobody has actually gone looking. The same caution applies to *Panaeolus cyanescens*, a pantropical species that may occur in the region but lacks confirmed Indian taxonomic documentation. Goans already forage edible varieties like “roen olmi” for food and folk medicine (de Souza, 2025); cultural familiarity with wild fungi exists. What is missing is the systematic baseline survey work required to establish what exists in the field. Addressing that empirical gap is the primary purpose of this paper.

Related Work

A recent, independently developed paper by researchers at NIMHANS—Tom, Reddy, Sethi, and Math (2026), published in the *Indian Journal of Psychological Medicine*—covers overlapping legal ground, arguing that India’s judicial treatment of whole-mushroom quantification could position the country uniquely for whole-organism psilocybin research. That paper focuses strictly on national clinical-research access. It does not address Goa’s local biodiversity, conservation frameworks, or the myco-reserve model outlined here. The two works are complementary, and this review explicitly engages with their legal analysis in the sections below.

Environmental and Conservation Potential

The ecological rationale is straightforward: economic valuation of fungal resources provides a direct incentive for habitat preservation over land clearing. Fungal networks actively support soil health, bolster ecosystem stability, and contribute to carbon sequestration through mycorrhizal relationships with forest flora (Tsing, 2015). A conservation strategy built around designated “myco-reserves” pairs habitat protection with sustainable agroforestry and controlled, revenue-generating ecotourism.

Pharmaceutical Potential and Economic Development

Commercial interest in psychedelic biopharmaceuticals remains substantial despite broader biotech market volatility. Sector financing reached approximately \$651 million in 2024 (Psychedelic Alpha, 2025a), maintaining momentum through mid-2025 with major raises such as Lykos Therapeutics’ \$50 million round (Psychedelic Alpha, 2025b). Industry consolidation is also accelerating. Following an initial announcement in June 2025, atai Life Sciences and Beckley Psytech completed a strategic combination on November 5, 2025, forming AtaiBeckley N.V. (AtaiBeckley N.V., 2025; atai Life Sciences & Beckley Psytech, 2025). Their combined pipeline includes a 5-MeO-DMT nasal spray (mebufotenin benzoate / BPL-003) currently targeting treatment-resistant depression (BioPharma Dive, 2025).

Market size projections for psychedelic therapeutics vary widely, reflecting an early-stage industry with highly volatile long-term assumptions (KPMG, 2022; Mordor Intelligence, 2026). Verified clinical trial activity and financing rounds offer a far more reliable metric of sector trajectories than ten-year revenue forecasts.

While these global dynamics do not directly involve Goa, they define the commercial backdrop for any future bioprospecting. Collaborative partnerships between local research institutions and pharmaceutical developers could yield intellectual property and therapeutic exports (Nichols, 2016). However, statutory obligations are clear: under India's Biological Diversity Act, 2002, any commercial or research utilization of local biological resources requires formal access agreements and benefit-sharing mechanisms administered through State Biodiversity Boards and the National Biodiversity Authority (Government of India, 2002).

Proposal for Myco-Reserves in Goa

The core strategy relies on establishing formal "Myco-Reserves" across biodiversity-rich zones in Goa, particularly within the Western Ghats buffer regions. These protected habitats would support the systematic study and sustainable management of native fungal species—edible, medicinal, and potentially psychoactive.

The operational sequencing is critical. Field surveys must precede any downstream development. This model is not a pre-stocked commercial reserve; it is a regulatory framework designed to permit legal field taxonomy before cultivation or harvesting is evaluated.

MYCO-RESERVE IMPLEMENTATION ROADMAP

Phase 1 Months 1–12 (Baseline Taxonomic Survey): Ethnomycological documentation, DNA barcoding, voucher specimen collection, and stakeholder engagement (Goa Biodiversity Board, IPHB, tribal leadership).

Phase 2 Month 12 Onward (Conditional Management): Contingent on Phase 1 findings—formal reserve zoning, trail infrastructure, sustainable harvesting training, and controlled research licensing.

Phase 1 requires 6 to 12 months of intensive field taxonomy, DNA barcoding, and distribution mapping. This work must be executed jointly by the Goa State Biodiversity Board, the Institute of Psychiatry and Human Behaviour (IPHB), local mycologists, and indigenous forest communities. Progression to Phase 2—formal zoning, trail infrastructure, and controlled research access—is strictly contingent on Phase 1 empirical findings. Regulatory review timelines remain a variable factor.

If surveys confirm viable psilocybin-producing populations, the framework provides structured habitat protection, prevents unregulated foraging, and preserves traditional ecological knowledge. Conversely, if psychoactive species are absent, documenting that negative result still yields valuable taxonomic baseline data while protecting forest canopy health.

Proposal for an IPHB-Goa Psychedelic Therapy and Research Center

The second initiative proposes a dedicated clinical unit under the Institute of Psychiatry and Human Behaviour (IPHB). This facility is designed as a tertiary care neuropsychiatric research center operating under Good Clinical Practice (GCP) standards, not a commercial wellness clinic.

To function safely, the unit would require direct medical supervision from certified clinical professionals (Reiff et al., 2020). Beyond clinical supervision, the core priority must be trial data gathered specifically from Indian patient cohorts—filling a major gap, given that most published trials reflect Western populations. It will also need to double as a teaching facility to build a local workforce of trained psychedelic therapists, while sourcing fungi through partnerships with local agriculturalists once taxonomic surveys support sustainable cultivation (CABI Agriculture and Bioscience, 2025).

Integrating psychiatric research, conservation economics, and local development aligns with global trends in clinical psychedelic integration (Pollan, 2018).

Legal and Ethical Considerations

Statutory clarity is essential. Psilocybin and psilocin are controlled psychotropic substances under India's Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985. Possessing or selling them remains a criminal offense under Indian law. Full stop. Nothing proposed here alters that statutory reality.

Recent High Court jurisprudence has produced diverging interpretations regarding raw fungal biomass. In *Saeidi Mozdheh Ehsan v. State of Karnataka* (2013), the court held that raw biomass cannot be assumed to equal pure psilocybin without quantitative laboratory testing. The Madras High Court adopted a similar line in *S. Mohan v. State* (2024), ruling that intact mushrooms are not listed *per se* in the NDPS schedule.

However, a different bench of the Madras High Court reached the opposite conclusion weeks later in *Dhanaraj v. Inspector of Police* (2024), treating the entire weight of seized mushrooms as contraband on the grounds that psilocybin permeates the fungal tissue. Most recently, the Kerala High Court aligned with the *Ehsan* precedent in *Rahul Rai v. State of Kerala* (2025), holding that raw biological matter does not constitute a "mixture" under statutory quantity thresholds.

Case Title & Citation	Jurisdiction / Year	Key Legal Finding
<i>Saeidi Mozdheh Ehsan v. State of Karnataka</i>	Karnataka High Court (2013)	Fungi biomass cannot be assumed to be pure psilocybin without lab quantification.
<i>S. Mohan v. State</i>	Madras High Court (2024)	Whole mushrooms per se are not listed; active compound content determines status.
<i>Dhanaraj v. Inspector of Police, Kodaikanal</i>	Madras High Court, Madurai Bench (2024)	Departs from Karnataka approach; holds entire seized weight counts toward commercial quantity.
<i>Rahul Rai v. State of Kerala</i>	Kerala High Court (2025)	Mushrooms are not "mixtures" under NDPS; quantification required for weight class.

Note. Rulings reflect state-level judicial interpretations and do not constitute binding national precedent. Dhanaraj and S. Mohan represent conflicting bench rulings within the same High Court.

These rulings reflect a live judicial split, not a settled consensus. The conflicting holding in *Dhanaraj* underscores why programs cannot rely on legal gray areas. Explicit multi-agency licensing is required.

While Section 8 of the NDPS Act permits medical and scientific exemptions, operationalizing a trial requires coordination across multiple jurisdictions:

- **Central Licensing:** Central Bureau of Narcotics (Narcotics Commissioner).
- **State Enforcement:** State Drug Controller and State Excise Department.
- **Clinical Trial Approval:** Central Drugs Standard Control Organisation (CDSCO) / DCGI under the Drugs and Cosmetics Act, 1940.
- **Traditional Knowledge Integration:** Ministry of AYUSH.

Establishing a dedicated Psychedelic Policy Taskforce in Goa would streamline this administrative workflow while ensuring compliance with access-and-benefit-sharing mandates under the Biological Diversity Act, 2002.

Conclusions

Goa possesses unexplored fungal biodiversity alongside an accelerating global clinical research field. Domestic drug enforcement jurisprudence remains unsettled. Neither unmonitored commercialization nor continued scientific neglect offers a viable path forward. A survey-first, conservation-led framework grounded in explicit multi-agency licensing provides a legally sound foundation for future research.

Declarations and Disclosures

Human Subjects: Not applicable. This article does not involve human participants, patient data, or original data collection.

Animal Subjects: Not applicable.

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