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A study on the diversity of mushrooms from P.G. centre, Kavali, Nellore District, Andhra Pradesh, India

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ABSTRACT

Aim: The aim of the study was to document the variety of mushroom species present, understand their ecological roles and explore their potential uses.

Materials and Methods: Total 29distinct mushroom species across various families, habitats, and ecological nichesfrom 26 genera and 09 families were identified in Kavali Region for this study. Agaricaceae was the most dominant family, with 14 genera. The next most represented families were Amanitaceae (3 species), Lyophyllaceae (2 species), Tricholomataceae (2 species), other families (Hymenogastraceae, Psathyrellaceae, Physalacriaceae, Hydnangiaceae, Ganodermataceae) were represented by one species each.

Results: The results highlight the ecological importance of mushrooms in nutrient cycling and soil formation, their economic value to local communities, and their pharmacological potential. The research underscored the need for conservation efforts and sustainable utilization strategies to preserve these vital fungal resources. The study included both edible and poisonous mushrooms, focusing on spore characteristics and the ecological roles. Results demonstrated a significant diversity in mushroom species, highlighting the need for further research into their medicinal, nutritional and environmental value.

Conclusion: It was concluded that a rich and diverse fungal community with significant ecological, economic and pharmacological importance. The findings highlight the role of mushrooms in nutrient cycling, soil formation and their potential uses in traditional and modern medicine. This research underscores the need for conservation efforts and sustainable utilization strategies to preserve these vital fungal resources.

Keywords: Mushroom biodiversity, Kavali, Nellore district, fungal ecology

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Introduction

Mushrooms represent a vital group of fungi, contributing significantly to ecological processes and exhibiting a wide range of nutritional, medicinal, and toxic properties. The diversity of mushrooms across different regions, especially in forest ecosystems, is influenced by various environmental factors such as temperature, humidity, and the presence of host trees. In India, the mushroom flora is rich, with several species adapted to varied ecological niches. Mushroom diversity studies are crucial not only for documenting species but also for understanding their roles in nutrient cycling, symbiosis, and potential benefits to human health.

Andhra Pradesh, particularly the region of Kavali in the Nellore district, is home to a variety of mushrooms that thrive in the tropical and subtropical climate of the region. The P.G. Centre, located in Kavali, provides a unique environment for the growth of mushrooms due to its diverse flora and climatic conditions. The present study focuses on documenting the mushroom species found in this region, identifying their ecological roles, and assessing their edibility and medicinal properties.Studies have shown that mushrooms play a key role in ecosystem functioning by decomposing organic matter, forming mycorrhizal associations, and recycling nutrients (Chang & Miles, 2004). In addition to their ecological significance, many mushrooms are known for their nutritional and medicinal properties. For instance, Ganoderma species are renowned for their medicinal uses, while Agaricus bisporus is one of the most widely consumed edible mushrooms globally (Wasser & Weis, 1999). However, some species,

such as Amanita phalloides and Amanita muscaria, are highly toxic and can cause severe health risks (Rogers, 2012). Therefore, understanding the diversity of mushrooms and their respective properties is essential for both ecological and health-related research.

The study aimed to contribute the growing body of knowledge on mushroom diversity in India by focusing on the species found in the P.G. Centre, Kavali. The identification of mushroom species, their habitats, and their potential uses or risks are important for conservation efforts, ecological research, and understanding the possible applications of mushrooms in medicine and nutrition. Mushrooms are an essential part of the ecosystem, contributing to nutrient cycling, soil formation, and providing food and medicinal resources. The biodiversity of mushrooms varies significantly by region, influenced by climatic, ecological, and geographical factors. In India, the diversity of mushrooms is relatively underexplored, particularly in southern regions like Andhra Pradesh. This study aims to catalog the mushroom species found in the P.G. Centre, Kavali, Nellore District, Andhra Pradesh, to better understand their diversity, ecological roles, and potential benefits or hazards. Previous studies have focused on regions like the Western Ghats and Northeastern India, but few have systematically documented mushroom species in Andhra Pradesh, despite its varied habitats ranging from forests to pastures.

According to Edyawati et al. (2019), mushrooms are macrofungi that have distinct fruiting bodies. Mushrooms, the fruiting bodies of fungi, play an essential role in ecosystems as decomposers, mutualists, and sometimes pathogens. Their ecological importance extends to nutrient cycling, soil formation, and forming symbiotic relationships with plants. The biodiversity of mushrooms is a vital component of forest ecosystems and agricultural lands. This paper aims to explore the diversity of mushrooms in P.G.Centre, Kavali, located in the Nellore district of Andhra Pradesh, India.The region of Kavali, with its varied climatic conditions and rich vegetation, provides a conductive environment for a wide range of mushroom species. Previous studies have highlighted the presence of diverse fungal communities in different ecosystems across India, indicating the potential for discovering novel and unique mushroom species in under explored regions like Kavali (Manoharachary et al., 2005).They are nature's natural recyclers, breaking down dead matter and repurposing it to create new things (Venkatesan and Arun, 2019). Numerous macrofungi species have been identified in Kebbi State, primarily in the southern region (Keta et al., 2019).

The morphology of mushrooms varies widely in number. They are often formed on soil above or below ground level, and they are large enough to be seen with the unaided eye and to be selected by other creatures.In Nigeria, a large number of edible species have been identified and characterised (Adejumo et al., 2015).The most noticeable characteristics and crucial ones for recognising mushrooms are the variations in size, colour, texture, and shape of the cap and stalk. Ancient Greeks and Romans ate mushrooms as part of their diet. Chinese called them an elixir of life, while Romans considered them as meal of God (Bashir et al. 2014).

Fungi called mushrooms have fruiting bodies that are visible with Wild edible mushrooms are traditionally used as food and medicine in many places (Saiqa et al. 2008). These mushrooms are tasty and nutritious. Karwa & Rai (2010) conducted a study in Melghat Forest; a Tiger Reserve located in the Satpuda mountain ranges of Maharashtra, and found 153 different kinds of edible and medicinal mushrooms. Numerous mycologists have made important contributions to the study of macrofungal diversity. Natarajan et al. (2005) and Kaur et al. (2013) focused in particular on the diversity of agarics from Tamilnadu's Western Ghats, namely the Nilgiri Biosphere Reserve. Senthilarasu and Kumaresan (2016) investigated the morphological taxonomy of fifteen agaric species that were gathered from the dipterocarp forests of Karnataka's Western Ghats and belong to the order Agaricales. Aim of the present study was to highlight of the mushroom diversity as no reports on mushroom diversity of P.G.Centre, Kavali Region of Andhra Pradesh.

Materials and Methods

The study was conducted at the P.G. Centre, Kavali, located in Nellore District, Andhra Pradesh, India contribute to both ecological balance and local economies. The region included diverse ecosystems, such as grasslands, forests, and cultivated fields, making it a suitable location for studying mushroom diversity. It was not only

involved in essential ecological processes but also have significant economic value, being a source of food, medicine, and income for local communities. The study of mushroom biodiversity in the area can provide insights into sustainable use and conservation strategies, ensuring the preservation of these vital resources (Chang & Miles, 2004). In addition to their ecological and economic importance, mushrooms are recognized for their pharmacological properties. This research aims to document the mushroom species present in P.G.Centre, Kavali, assess their ecological roles, and explore their potential uses. By contributing to the understanding of fungal biodiversity in this region, the study seeks to provide a foundation for future conservation efforts and sustainable utilization of mushroom resources.

Collection of Samples

Mushroom samples were collected from various habitats, including grasslands, forest floors, and decaying wood between June and September, which corresponds to the monsoon season. Identification of mushrooms was based on macroscopic characteristics such as cap shape, color, gills, and spore prints. Microscopic examination of spore morphology was conducted using a compound microscope. Species identification followed standard taxonomic keys.

Mushrooms, the fruiting bodies of fungi, are crucial components of ecosystems, functioning as decomposers, mutualists, and occasionally pathogens. They play a significant role in nutrient cycling, soil formation, and forming symbiotic relationships with plants (Stamets, 2005). The biodiversity of mushrooms is an essential aspect of forest ecosystems and agricultural lands, contributing to ecological balance and local economies.

Kavali, located in the Nellore district of Andhra Pradesh, India, is known for its diverse climatic conditions and rich vegetation, providing an ideal environment for various mushroom species. Previous studies have highlighted the presence of diverse fungal communities in different ecosystems across India, indicating the potential for discovering novel and unique mushroom species in underexplored regions like Kavali (Manoharachary et al., 2005). Understanding the diversity and ecological roles of mushrooms in this region is vital for both conservation efforts and sustainable utilization.Mushrooms in the Nellore district contribute significantly to the local economy, serving as a source of food, medicine, and income for local communities. They are recognized for their nutritional and pharmacological properties, with numerous species possessing bioactive compounds with antioxidant, antimicrobial, and anticancer properties (Wasser, 2010). The study of mushroom biodiversity in Kavali P.G. Centre can provide insights into sustainable use and conservation strategies, ensuring the preservation of these vital resources.

Field Surveys were conducted during the rainy season when mushroom growth is most prolific. Surveys were performed in various habitats including forested areas.Mushrooms were collected using standard mycological methods. Specimens were photographed in situ, then carefully collected and preserved for further analysis. Specimens were taxonomically identified based on morphological characteristics, with confirmation through microscopic examination where necessary. Identification keys and relevant literature were used. Data Analysis also carried out by Species richness, frequency, and family distribution was calculated. Spore characteristics are essential for identification and classification in mycological studies.

Each species was documented for its habitat, family, order, status (edible, medicinal, or poisonous), and spore characteristics. Special attention was given to spore print color and morphology, which are critical in mushroom identification.

Results and Discussion

The study identified 29 mushroom species belonging to 26 genera and 08 familiesand 7 orders. Agaricaceae is the most dominant family, with 13 genera. The next most represented families are Amanitaceae (3 species), Lyophyllaceae (2 species), Tricholomataceae (2 species), Other families (Hymenogastraceae, Psathyrellaceae, Physalacriaceae, Hydnangiaceae, Ganodermataceae) are represented by one species each. The diversity of mushrooms in the region highlights their ecological roles, particularly in decomposing organic matter and contributing to nutrient cycling. Several species were identified as having potential economic value due to their edibility and medicinal properties, while others were noted for their pharmacological potential

Table1. Lists 29 mushroom species observed from the P.G. Centre in Kavali, Nellore district, detailing their scientific names, common names (if available), habitats, family, order, status (edibility or toxicity), and spore characteristics

S.No	Scientific Name	Common Name	Habitat	Family	Order	Status	Spore Characteristics
1.	Psilocybe cubensis	Magic mushroom /Gold cap	Grows on dung, especially in cattle pastures, in subtropical and tropical climates.	Hymenogastraceae	Agaricales	Medicinal/ Psychoactive (M)	Dark purplish-brown spore print. Spores are smooth, subellipsoid, and about 11-17 µm in length.
2.	Agaricus bisporus	Common Mushroom/Button Mushroom	Found in nutrient-rich soils, compost piles, and grasslands.	Agaricaceae	Agaricales	Edible (E)	Spore print is chocolate brown. The spores are smooth, elliptical, and measure about 4-6 µm in length.
3.	Lacrymaria lacrymabunda	Weeping Widow	Found in disturbed grounds, grassy areas, and wood chips.	Psathyrellaceae	Agaricales	Edible or Slightly Poisonous (E/P)	Black spore print. The spores are oval, with warty surfaces, measuring about 9-11 µm long.
4.	Amanita bisporigera	Destroying angel	Found in deciduous and mixed forests, often near oaks and other hardwoods.	Amanitaceae	Agaricales	Poisonous (P	White spore print. Spores are smooth, spherical to ellipsoid, and measure 7-9 µm in length.
5.	Cystolepiota petasiformis	(No widely known common name)	Grows in leaf litter, usually in forests.	Agaricaceae	Agaricales	Unknown (UN)	White spore print. Spores are smooth, ellipsoid, and measure 6-8 µm long.
6.	Amanita vergineoides	False Virgin's Lepidella	Found in woodland areas, often with conifers and hardwoods.	Amanitaceae	Agaricales	Poisonous (P)	White spore print. Spores are spherical to ellipsoid and smooth, measuring 8-10 µm long.
7.	Amanita phalloides	Death Cap	Found in forests, especially near oak and other hardwood trees.	Amanitaceae	Agaricales	Poisonous (P)/ Deadly.	White spore print. Spores are smooth, ellipsoid, and measure 8-12 µm long.
8.	Pleurotus Citrinopileatus	Golden Oyster Mushroom	Found on decaying wood, especially hardwood logs.	Pleurotaceae	Agaricales	Edible and Medicinal (E/M)	White to lilac-grey spore print. The spores are smooth, cylindrical to ellipsoid, and measure 7-9 µm long.
9.	Melanophyllum haematospermum	(No widely known common name)	Found in grassy areas and woodlands.	Agaricaceae	Agaricales	Unknown (UN)	Red-brown spore print. Spores are ellipsoid and measure about 6-8 µm long.
10.	Cystoagaricus trisulphuratus	(No widely known common name)	Found on decaying wood and litter in forests.	Agaricaceae	Agaricales	Unknown (UN)	Dark spore print. Spores are smooth, ellipsoid, and about 7-10 µm long.
11.	Strobilurus conigenoides	(No widely known common name)	Grows on decaying cones of conifers.	Physalacriaceae	Agaricales	Unknown (UN)	White spore print. The spores are smooth, ellipsoid, and measure about 5-8 µm long.
12.	Agaricus campestris	Field Mushroom	Found in grasslands and pastures.	Agaricaceae	Agaricales	Edible (E)	Brown spore print. Spores are smooth, elliptical, measuring 5-7 µm long.
13.	Basidiomata laccaria prava	(No widely known common name)	Found in forests, particularly in humus-rich soil.	Hydnangiaceae	Agaricales	Unknown (UN)	White spore print. The spores are smooth, elliptical, and

							measure about 8-10 µm long.
14.	Ganoderma sichuanenense	(No widely known common name)	Grows on decaying wood, especially hardwood logs.	Ganodermataceae	Polyporales	Medicinal (M)	Brown spore print. The spores are double-walled, ellipsoid, measuring 9-12 µm long.
15.	Termitomyces microcarpus	(No widely known common name)	Found in termite mounds and soil.	Lyophyllaceae	Agaricales	Status: Edible (E)	White spore print. Spores are smooth, elliptical, and measure about 7-10 µm long.
16.	Cystolepiota sistrata	(No widely known common name)	Found in forests and woodlands.	Agaricaceae	Agaricales	Inedible or Poisonous (P)	White spore print. Spores are smooth, elliptical, measuring about 5-7 µm long.
17.	Micropsalliota pseudo volvulata	(No widely known common name)	Grows in decaying organic matter and leaf litter.	Agaricaceae	Agaricales	Edibility unknown (limited data available)	Brown spore print. Spores are elliptical and measure about 4-6 µm long.
18.	Agaricustrisulphuratus	(No widely known common name)	Found in pastures, meadows, and grassy areas.	Agaricaceae	Agaricales	Poisonous (some species in the Agaricus genus can be toxic)	Chocolate-brown spore print. Spores are smooth, ellipsoid, and measure 5-7 µm long.
19.	Agaricus semotus	(No widely known common name)	Grows in grasslands, meadows, and pastures.	Agaricaceae	Agaricales	Edibility unknown (limited data available)	Brown spore print. Spores are smooth, elliptical, and measure 6-8 µm long.
20.	Clitocybe nebularis	Clouded Agaric	Found in woodlands, particularly in leaf litter.	Clitocybaceae	Agaricales	Edible (with caution, as some individuals may experience gastrointestinal upset)	White spore print. Spores are smooth, ellipsoid, and measure 6-8 µm long.
21.	Coprinus comatus	Shaggy Ink Cap)	Found in lawns, meadows, and on roadsides.	Agaricaceae	Agaricales	Edible (best when young, before the gills blacken and liquefy)	Black spore print. Spores are smooth, elliptical, and measure 10-13 µm long.
22.	Termitomyces schimperi	(No widely known common name)	Found in association with termite mounds.	Lyophyllaceae	Agaricales	Edible (considered a delicacy in some regions)	White spore print. Spores are smooth, ellipsoid, and measure about 9-12 µm long.
23.	Lepiota clypeolaria	(No widely known common name)	Found in woodlands, often in leaf litter.	Agaricaceae	Agaricales	Poisonous (some species in the Lepiota genus are known to be toxic)	White spore print. Spores are smooth, elliptical, and measure 6-9 µm long.
24.	Macrolepiota procera	Parasol Mushroom	Found in meadows, gardens, and grasslands.	Agaricaceae	Agaricales	Edible (highly regarded and popular for culinary use)	White spore print. Spores are smooth, elliptical, and measure about 12-16 µm long.
25.	Tricholomopsis sulfureoides	No widely known common name	Found in coniferous woodlands on decaying wood.	Tricholomataceae	Agaricales	Edibility unknown (limited data available	White spore print. Spores are smooth, ellipsoid, and measure about 6-8 µm long.
26.	Termitomyces microcarpus	None specifically	Found in termite mounds and soil.	Lyophyllaceae	Agaricales	Edible (commonly	White spore print. Spores are smooth,

		known, often referred to as a small termite mushroom.				consumed in various parts of Africa and Asia)	elliptical, and measure about 7-10 µm long.
27.	Cystolepiota sistrata	None widely recognized; it's a small, often overlooked mushroom.	Found in forests and woodlands.	Agaricaceae	Agaricales	Inedible or potentially toxic (not recommended for consumption due to limited knowledge and potential toxicity)	White spore print. Spores are smooth, elliptical, measuring about 5-7 µm long.
28.	Chlorophyll-um molybdites	Green-spored Parasol, False Parasol	Found in lawns, meadows, and open grassy areas.	Agaricaceae	Agaricales	Poisonous (causes severe gastrointestinal distress if consumed)	Greenish spore print. Spores are smooth, elliptical, and measure about 8-11 µm long.
29.	Amanita muscaria (L)	Fly Agaric	Distribution: Widespread across temperate and boreal regions of the Northern Hemisphere, including Europe, Asia, North America, and some introduced regions in the Southern Hemisphere (e.g., New Zealand, Australia). Ecological Niche: It forms symbiotic relationships with various trees, mainly birch, pine, spruce, and fir. It is typically found in woodlands and forest edges. Soil: Prefers acidic soils and is often found in association with coniferous or deciduous trees in well-drained forest floors.	Agaricaceae	Agaricales	Edibility: Toxic. Fly Agaric contains psychoactive compounds such as ibotenic acid and muscimol. While not typically fatal, it can cause hallucinations, nausea, and neurological symptoms. Despite its toxicity, it has been used in traditional cultures for its psychoactive properties. Conservation: Not considered endangered or threatened; it is common in many of its native habitats.	Spore Print: White. Spore Shape: Ellipsoid or ovoid. Spore Size: Approximately 9–13 µm in length and 6.5–9 µm in width. Spore Surface: Smooth, with thin walls. Basidia: Typically 4-spored, clavate (club-shaped).

Notes: E – Edible, E/P – These Mushrooms are generally considered Edible or Slightly Poisonous, UN – Unknown, E/M – Edible and Medicinal, ID – Industrial use, M – Medicinal, IE/M – Inedible and Medicinal, P – Poison.

1.Psilocybe cubensis(magic mushroom)

2. Agaricus bisporus (cultivated nushroom)

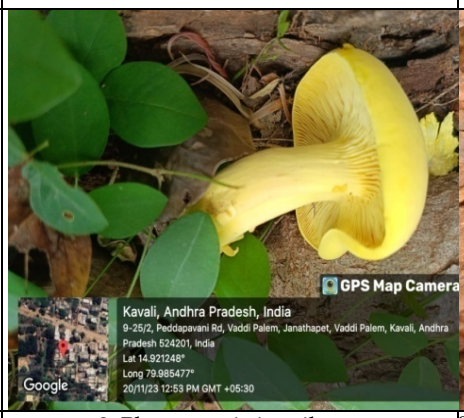
3. Lacrymaria lacrymabunda (Weeping widow)

4. Amanita bisporigera (Destroying angel)

5. Cystolepiota petasiformis/constricta

6. Amanita vergineoides (False virgins lepidella)

7. Amanita phalloides (Death cap)

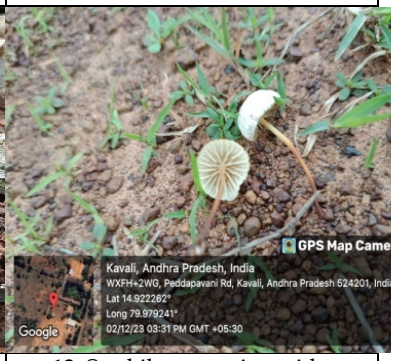


8. Pleurotus citrinopileatus (golden Oyster mushroom)

9. Melanophyllum haematospermum

10. Pcilocybe cubensis(Gold cap)

11. Cystoagaricus trisulphuratus



12. Strobilurus conigenoides

13. Agaricus campestris

14. Psilocybe cubensis

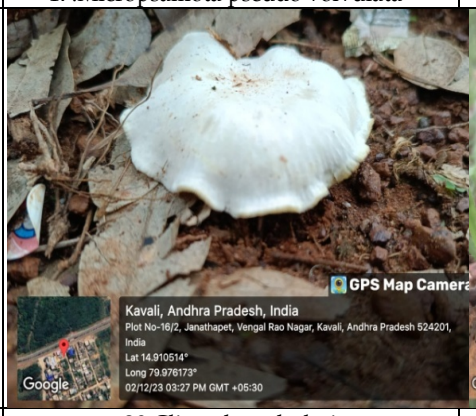
15. Basidiomata laccariaprava

16.Ganoderma sichuanenense

17.Micropsalliota pseudo volvulata

18.Agaricus trisulphuratus

19. Agaricus semotus



20.Clitocybe nebularis

21. Coprinus comatus

22.Termitomyce schimperi

23. Lepiota clypeolaria

24.Macrolepiota procera /albuminosa

25.Tricholomopsis sulfureoides

26.Termitomyces microcarpus

27.Cystolepiota Sistrata

28. Chlorophyllum molybdites

29. Amanita muscaria (L)

The results underscore the rich diversity of mushroom species in the Kavali region. This diversity includes species of significant ecological, medicinal, and toxicological importance. Similar findings were reported by Edyawati et al (2019). The presence of both highly poisonous species (such as **Amanita phalloides**) and commonly edible varieties (**Agaricus bisporus**) suggests that this region is a complex ecological niche with both beneficial and harmful species coexisting. Several species, particularly those belonging to the Amanitaceae and Agaricaceae families, require cautious handling due to their toxic properties. These results were corroborated by Keta et al (2019).

This study also brings attention to the medicinal mushrooms found in the region, such as **Ganoderma sichuanense**, which has significant potential for pharmaceutical applications (Rogers, 2012). However, the presence of unclassified species indicates a gap in regional taxonomic knowledge, highlighting the need for ongoing mycological research in this underexplored area.

Conclusions

It was concluded that he exploration of mushroom biodiversity in P.G.Centre, Kavali, Nellore district, reveals a rich and diverse fungal community with significant ecological, economic, and pharmacological importance. The findings highlight the role of mushrooms in nutrient cycling, soil formation, and their potential uses in traditional and modern medicine. This research underscores the need for conservation efforts and sustainable utilization strategies to preserve these vital fungal resources. By documenting the mushroom species present in P.G.Centre, Kavali and understanding their ecological roles, this study contributes valuable insights to the broader field of fungal biodiversity and conservation. Future research should focus on further exploring the pharmacological potential of these mushrooms and developing sustainable harvesting practices to ensure their long-term preservation.Fungi are present in human settings. Some view mushrooms as slimy, repulsive objects devoid of any positive qualities. People have a mutual love and hate relationship with mushrooms, but we could be overly fearful of selecting them ourselves. Therefore, fungi are neither good nor wicked by nature. Less than a dozen of those are extremely toxic. Less than half of those are actually fatal. That being said, nobody should go out and start ageing mushrooms right away. However, novices can pick up on identifying a few tasty delicacies as

well as certain characteristics of toxic species. In ways that we are still learning about, human action is also having an impact on them.

The diversity of mushrooms in the P.G. Centre, Kavali, Nellore District is considerable, with species ranging from widely known edible mushrooms to highly toxic varieties. The study emphasizes the importance of proper identification and classification of mushrooms due to their varying effects on human health and their ecological significance. Further research is needed to explore the medicinal properties and potential risks posed by unidentified species. Conservation efforts should also be considered to protect the unique fungal diversity in this region.

References

Adejumo T, Coker M and Akinmoladun V (2015). Identification and evaluation of nutritional status of some edible and medicinal mushrooms in Akoko Area, Ondo State, Nigeria. Int. J. Cur. Microbiol. App. Sci, 4(4): 1011-1028.

Bashir A, Vaida N and Dar MA (2014). Mushroom - A review, International Journal of Advanced Research. 2(12): 1-4.

Chang ST and Miles PG (2004). *Mushrooms: Cultivation, Nutritional Value, Medicinal Effect, and Environmental Impact*. CRC Press.

Edyawati DRR, Ratnaningtyas NI and Retnowati A (2019). Identification and Collection of Macro Fungi (Basidiomycota: Agaricales) From Baturraden Botanical Garden, Banyumas. Bio Eksakta: Jurnal Ilmiah Biologi Unsoed, 1(2): 31-35.

Karwa A and Rai MK (2010). Tapping into the edible fungi biodiversity of Central India. Biodiversitas.11(2): 97-101.

Keta J, Hadi S, Aliero AA, Keta MN and Abubakar M (2019). Diversity of Wild Macro Fungi in Kebbi State, A Baseline Report. Equity Journal of Science and Technology, 6(1): 78-86.

Manoharachary C, Sridhar K, Singh R and Adholeya A (2005). Fungal biodiversity, Distribution, conservation and prospecting of fungi from India. Curr Sci. 89(1): 58-71.

Rogers R (2012). The Fungal Pharmacy: The Complete Guide to Medicinal Mushrooms and Lichens of North America. North Atlantic Books.

Saiqa S, Haq NB and Muhammad AH (2008). Studies on chemical Composition and Nutritive Evaluation of Wild Edible Mushrooms. Iranian Journal of Chemical Engineering. 27: 151-154.

Senthilarasu G and Kumaresan V (2016) Diversity of agaric mycota of Western Ghats of Karnataka, India. Current Research in Environmental & Applied Mycology. 6(2): 75-101.

Stamets P (2005). *Mycelium Running: How Mushrooms Can Help Save the World*. Ten Speed Press.

Venkatesan G and Arun G (2019). A study on the diversity of mushroom from Cauvery Delta region, Tamil Nadu India. Global Scientific, 7(3): 874-882.

Venkatesan G (2004). Ecology of tree endophytes of Dry Thorn and Evergreen forests of the Nilgiri Biosphere Reserve. Ph.D. thesis, University of Madras, Ramakrishna Vivekananda College, Mylapore, Chennai.

Wasser SP and Weis AL (1999). *Therapeutic Effects of Substances Occurring in Higher Basidiomycetes Mushrooms: A Modern Perspective*. Critical Reviews in Immunology, 19(1): 65-96.

Wasser SP (2010). Medicinal mushrooms as a source of antitumor and immunomodulating polysaccharides. Applied Microbiology and Biotechnology, 60(3): 258-274.

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