

**IDENTIFICATION, AND CHARACTERIZATION OF
MACRO FUNGI
IN SELECTED RUBBER STATES OF KALUTARA DISTRICT,
SRI LANKA**



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ABSTRACT

Kalutara District of Sri Lanka, known well for its rubber plantations in huge quantities, provides an agro-ecosystem quite different, bearing a lot of macro fungi from various origins. Even though there is ecological and economic importance in the presence of rubber estates, they have not been the subject of an extensive enough study on knowing and characterizing the macro fungi present in this type of estate. Hence, this study aimed to record the diversity of the macro fungi, their distribution, and functions within the agro-ecological ecosystem in rubber estates in Kalutara District systematically.

Field collections were conducted in several rubber estates, and macro fungi samples were collected, photographed, and identified using morphological techniques. Ecological characteristics such as substrate specificity, seasonal variation, and habitat preference were studied to establish the force of the fungal community. The future biotechnological applications of the identified species, their enzymatic and bioactive characteristics, were also explored.

A total of 40 macro fungal species were identified across three rubber estates: Agalawatta (22 species), Millewa (5 species), and Wagawatta (13 species). Additionally, 4 species remained unspecified due to limitations in identification. Initial findings reveal high macro fungal diversity, with many species newly reported in Sri Lanka. The research proves the impact of plantation farming practices on fungal diversity and highlights the environmental roles of macro fungi in nutrient cycling and soil health. Additionally, the research reveals probable endemics and threatened species, which suggest the need for conservation of such agro-ecosystems.

This study provides a standard data set for future research on macro fungi associated with rubber plantations and contributes to the overall knowledge of fungal diversity in agro-ecosystems. The findings have policy relevance for sustainable plantation management, biodiversity conservation, and future research on the biotechnology potential of macro fungi. This study, by bridging the knowledge gap on macro fungi in Kalutara District, highlights the significance of integrating fungal conservation into agriculture for biodiversity resilience and productivity.

Keywords: Macro fungi, Kalutara District, rubber plantations, fungal diversity, agro-ecosystem, fungal ecology, biotechnological potential, enzymatic activity, fungal conservation, endemic fungi, soil health, nutrient cycling, sustainable plantation management, fungal taxonomy, Sri Lanka fungi, agro-biodiversity.

TABLE OF CONTENTS

CHAPTER 01	1
INTRODUCTION	1
1.1 Background of the Study	1
1.2 Research Problem and Rationale.....	1
1.3 Significance of the Study.....	2
1.4 Limitations of the Study	2
1.5 Research Objectives	2
1.5.1 Main Objective:	2
1.5.2 Specific Objectives:	2
CHAPTER 02	4
LITERATURE REVIEW	4
2.1 Introduction	4
2.2 Macro Fungi Diversity and Classification.....	4
2.3 Identification Techniques for Macro Fungi.....	4
2.4 Biological Character of Macro Fungi.....	5
2.5 Distribution and Habitat Preferences.....	5
2.6 Applications of Macro Fungi.....	6
2.7 Conservation Challenges and Future Research Directions.....	6
CHAPTER 3	7
MATERIALS AND METHODOLOGY	7
3.1 Introduction	7
3.2 Research Design.....	7
3.3 Study Area.....	7
3.4 Sample Collection Methods	7
3.5 Sample Processing Methods.....	8
3.5.1 Wet Collection	8
3.5.2 Dry Collection.....	8
3.6 Identification and Characterization.....	8
3.6.1 Morphological Characterization	8
3.6.2 Molecular identification.....	9
3.7 Data Analysis Procedures.....	9
3.8 Ethical Issues	9

3.9 Expected Outcomes	10
CHAPTER 4	11
RESULTS AND DISCUSSION	11
4.1 Introduction	11
4.2 Identification and Characterization of Macro Fungi	11
4.2.1 Species Identified in Agalawaththa Rubber Estate	12
4.2.2 Species Identified in Millewa Rubber Estate	34
4.2.3 Species Identified in Wagawatta Rubber Estate	39
4.3 Morphological Observations and Habitat Preferences	52
4.3.1 Color and Size Variation.....	52
4.3.2 Substrate Preferences	52
4.4 Discussion.....	53
4.4.1 Ecological Significance	53
4.4.2 Taxonomic Insights.....	53
4.4.3 Potential Applications.....	53
CHAPTER 5	54
CONCLUSION AND RECOMMENDATIONS	54
5.1 Conclusion.....	54
5.2 Recommendations for Further Studies	55
5.3 Future Outlook.....	56
5.4 Final Remarks.....	56
REFERENCES	57

LIST OF FIGURES

Figure 4.2.1 Rubber States Kaluthara District - Map	11
Figure 4.2.1.1 <i>Lantinus arcularis</i>	12
Figure 4.2.1.2 <i>Crepidotus Species</i>	13
Figure 4.2.1.3 <i>Hexagonia spp</i>	14
Figure 4.2.1.4 Unspecified species 1	15
Figure 4.2.1.5 <i>Alnicola melinoides</i>	16
Figure 4.2.1.6 <i>Xylocoremium flabelliforme</i>	17
Figure 4.2.1.7 <i>Clavulinopsis amoena</i>	18
Figure 4.2.1.8 <i>Microporus xanthopus</i>	19
Figure 4.2.1.9 <i>Picipes melonopus</i>	20
Figure 4.2.1.10 <i>Trametes versicolor</i>	21
Figure 4.2.1.11 <i>Panus fasciatus</i>	22
Figure 4.2.1.12 Unspecified species 2	23
Figure 4.2.1.13 <i>Hydnellum scrobiulatum</i>	24
Figure 4.2.1.14 <i>Pluteus leoninus</i>	25
Figure 4.2.1.15 <i>Mycena spp</i>	26
Figure 4.2.1.16 <i>Mycena metata</i>	27
Figure 4.2.1.17 <i>Gymnopus perforans</i>	28
Figure 4.2.1.18 <i>Mycena adscendens</i>	29
Figure 4.2.1.19 <i>Marasmius capillaris</i>	30
Figure 4.2.1.20 <i>Crepidotus variabilis</i>	31
Figure 4.2.1.21 <i>Crepidotus versutus</i>	32
Figure 4.2.1.22 <i>Ganoderma curtisii</i>	33
Figure 4.2.2.1 <i>Mycena haematopus</i>	34
Figure 4.2.2.2 <i>Ganoderma lucidum</i>	35
Figure 4.2.2.3 <i>Trametes spp</i>	36
Figure 4.2.2.4 <i>Amanita spp</i>	37
Figure 4.2.2.5 <i>Fulvifomes spp</i>	38
Figure 4.2.3.1 Unspecified species 3	39
Figure 4.2.3.2 <i>Ganoderma lobatum</i>	40
Figure 4.2.3.3 <i>Ganoderma lucidum</i>	41
Figure 4.2.3.4 <i>Trametes versicolor</i>	42

Figure 4.2.3.5 Unspecified species 4	43
Figure 4.2.3.6 <i>Schizophyllum spp</i>	44
Figure 4.2.3.7 <i>Stereum ostrea</i>	45
Figure 4.2.3.8 <i>Trametes spp</i>	46
Figure 4.2.3.9 <i>Hexagonia spp</i>	47
Figure 4.2.3.10 <i>Pycnoporus sanguineus</i>	48
Figure 4.2.3.11 <i>Microporus xanthopus</i>	49
Figure 4.2.3.12 <i>Gymnopilus spp</i>	50
Figure 4.2.3.13 <i>Xeromphalina spp</i>	51

LIST OF TABLES

Table 4.2.1.1 Specifications of <i>Lentinus arcularis</i>	12
Table 4.2.1.2 Specifications of <i>Crepidotus Species</i>	13
Table 4.2.1.3 Specifications of <i>Hexagonia Species</i>	14
Table 4.2.1.4 Specifications of Unspecified Species 1	15
Table 4.2.1.5 Specifications of <i>Alnicola Melinoides</i>	16
Table 4.2.1.6 Specifications of <i>Xylocoremium Flabelliforme</i>	17
Table 4.2.1.7 Specifications of <i>Clavulinopsis Amoena</i>	18
Table 4.2.1.8 Specifications of <i>Microporus Xanthopus</i>	19
Table 4.2.1.9 Specifications of <i>Picipes Melonopus</i>	20
Table 4.2.1.10 Specifications of <i>Trametes versicolor</i>	21
Table 4.2.1.11 Specifications of <i>Panus fasciatus</i>	22
Table 4.2.1.12 Specifications of Unspecified species 2	23
Table 4.2.1.13 Specifications of <i>Hydnellum scrobiulatum</i>	24
Table 4.2.1.14 Specifications of <i>Pluteus leoninus</i>	25
Table 4.2.1.15 Specifications of <i>Mycena spp</i>	26
Table 4.2.1.16 Specifications of <i>Mycena metata</i>	27
Table 4.2.1.17 Specifications of <i>Gymnopus perforans</i>	28
Table 4.2.1.18 Specifications of <i>Mycena adscendens</i>	29
Table 4.2.1.19 Specifications of <i>Marasmius capillaris</i>	30
Table 4.2.1.20 Specifications of <i>Crepidotus variabilis</i>	31
Table 4.2.1.21 Specifications of <i>Crepidotus versutus</i>	32
Table 4.2.1.22 Specifications of <i>Ganoderma curtisii</i>	33
Table 4.2.2.1 Specifications of <i>Mycena haematopus</i>	34
Table 4.2.2.2 Specifications of <i>Ganoderma lucidum</i>	35
Table 4.2.2.3 Specifications of <i>Trametes spp</i>	36
Table 4.2.2.4 Specifications of <i>Amanita spp</i>	37
Table 4.2.2.5 Specifications of <i>Fulvifomes spp</i>	38
Table 4.2.3.1 Specifications of Unspecified species 3	39
Table 4.2.3.2 Specifications of <i>Ganoderma lobatum</i>	40
Table 4.2.3.3 Specifications of <i>Ganoderma lucidum</i>	41
Table 4.2.3.4 Specifications of <i>Trametes versicolor</i>	42
Table 4.2.3.5 Specifications of Unspecified species 4	43

Table 4.2.3.6 Specifications of <i>Schizophyllum spp</i>	44
Table 4.2.3.7 Specifications of <i>Stereum ostrea</i>	45
Table 4.2.3.8 Specifications of <i>Trametes spp</i>	46
Table 4.2.3.9 Specifications of <i>Hexagonia spp</i>	47
Table 4.2.3.10 Specifications of <i>Pycnoporus sanguineus</i>	48
Table 4.2.3.11 Specifications of <i>Microporus xanthopus</i>	49
Table 4.2.3.12 Specifications of <i>Gymnopilus spp</i>	50
Table 4.2.3.13 Specifications of <i>Xeromphalina spp</i>	51