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Species Listing of Macroscopic Fungi in Isabela State University, Isabela as Baseline Information

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A preliminary study on the macroscopic fungi was conducted to determine the macroscopic fungi present in Isabela State University, Echague, Isabela. Specimens were collected on June to August 2017 and were identified based on their morphological characteristics. Thirty-one (31) species of macroscopic fungi were collected and identified to 20 genera and 15 families. Identified species were as follows: *Auricularia polytricha, A. auricula – judae, Termitomyces striatus, Calvatia cythiformis, Ganoderma lucidum, G. applanatum, G. adspersum, G. japonicum, Daedalea dickinsii, Phellinus linteus, P. ignarius, P. gilvus, Pleurocybella porrigens, Polyporus sanguineus, Pleurotus porrigens, Agaricus arvensis, Podoscypha* sp., *Trametes pubescens, T. elegans, T. hirsuta, T. versicolor, Geastrum triplex, G. fimbriatum Lentinus sajor – caju, L. tigrinus, Psathyrella candolleana, Clavulina cristata, Schizophyllum commune, Marasmius* sp., *Coprinus* sp. and *Cookenia* sp. Among the different substrate types, macrofungal species were mostly seen in decaying woods and logs. Some of the collected macroscopic fungi were non-edible and remained untapped and some are edible. Thus, macrofungi found in Isabela State University, Echague, Isabela are recommended to be evaluated for several bioactive components. This is the first macroscopic study of fungi in Isabela, Philippines.

Keywords: baseline, Echague, fungi, Isabela, macroscopic, species

Introduction

Macrofungi plays a role in the ecosystem as decomposers and as ecological indicators. Mushroom, in particular has also been cultivated for human consumption and biomedicinal production (Chang and Miles, 2004). It is well known to contain various compounds such as terpenoids, steroids, phenols and alkaloids, which have been proven to have biological effects like anticancer, antihypertension and antidiabetes (Lindequest *et al*, 2005).

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Based on the records of the Philippine Statistics Authority (2017), Isabela is known to be the largest province in the Island of Luzon and the second largest in the Philippines and one of the agricultural provinces which produces rice and corn because of the plains and terrains that surrounds the valley. In 2011, Isabela was known to be the 10th richest province in the Philippines, having one agricultural university situated at the center of Echague, Isabela, Isabela State University – Main Campus, serves as basin of rich and diverse flora and fauna including macroscopic fungi.

Because of this optimal condition of the province it very important to document its fungal diversity and because there is only a limited source of information regarding the macroscopic fungi, this research was conducted.

Materials and Methods

Study Site

Specimens were collected in five (5) different locations at the Isabela State University, located in 386 hectares of reservation. All collections were made in the closed canopy of trees.

Collection of Specimens

All visible macroscopic fungi on substrate such as soil, leaf litters, cow dung and decayed logs were collected from June to August 2017. Specimens in their natural habitat were photographed and described. Collected fruiting bodies were initially stored in polypropylene bags and were immediately taken to the laboratory for identification.

Preservation of Herbarium Specimens

Air-drying was done to preserve the collected specimens. Samples were then kept in PP bag with silica gel to prevent moisture and mold formation and were labelled with specimen code, date and place of collection. The prepared herbarium specimens were deposited at the Department of Biological Sciences, College of Arts and Sciences, Isabela State University, Echague, Isabela, Philippines.

Identification of Specimens

Morphological characteristics of the fruiting bodies were determined for each of the specimens. Substrate types were noted. Identification was made by photo comparison with published textbooks and literatures.

Results and Discussion

A total of 31 species of macroscopic fungi belonging to 20 genera and 15 families were collected and identified based on their morphological characteristics. The data revealed that majority of the collected species were under Basidiomycota. However, Ascomycota was poorly represented having only one species collected, specifically *Cookenia* sp. (Fig. 1L).

As presented in Table 1, results revealed that families Ganodermataceae and Polyporaceae were the most abundant among the different macroscopic fungi collected. The results of this current study is congruent with the annotation of De Castro and Dulay (2015) stating that these wood-rotters are silently killing dipterocarps and other valuable trees, signifying a threat to the ecosystem.

Similar species of mushrooms such as *P. porrigens, S. commune, A. polytricha, T. versicolor, P. sanguineus, G. lucidum and G. applanatum* were collected by Tadiosa and Briones (2013) in Taal Volcano Protected Landscape, Southern Luzon, Philippines.

Table 1. List of fungal species collected in Isabela State University

Code	Species	Family	Substrate Type
M1	*Auricularia polytricha*	Auriculariaceae	decaying log
M2	*Termitomyces striatus*	Tricholomataceae	soil
M3	*Calvatia cythiformis*	Agaricaceae	termite mount
M4	*Ganoderma lucidum*	Ganodermataceae	bark of tree
M5	*Ganoderma applanatum*	Ganodermataceae	decaying log
M6	*Daedalea dickinsii*	Fomitopsidaceae	decaying log
M7	*Phellinus linteus*	Hymenochaetaceae	bark of tree
M8	*Pleurocybella porrigens*	Marasmiaceae	bark of tree
M9	*Polyporus sanguineus*	Polyporaceae	decaying log
M10	*Ganoderma adspersum*	Ganodermataceae	bark of tree
M11	*Pleurotus porrigens*	Pleurotaceae	bark of tree
M12	*Agaricus arvensis*	Agaricaceae	termite mount
M13	*Podoscypha* sp.	Meruliaceae	dried leaves
M14	*Trametes pubescens*	Polyporaceae	decaying log
M15	*Geastrum triplex*	Geastraceae	dried leaves
M16	*Trametes elegans*	Polyporaceae	decaying log
M17	*Lentinus sajor – caju*	Polyporaceae	decaying log
M18	*Ganoderma japonicum*	Ganodermataceae	bark of tree
M19	*Psathyrella candolleana*	Psathyrellaceae	soil
M20	*Auricularia auricula – judae*	Auriculariaceae	decaying log
M21	*Clavulina cristata*	Clavulinaceae	bark of tree
M22	*Phellinus ignarius*	Hymenochaetaceae	decaying log
M23	*Schizophyllum commune*	Schizophyllaceae	decaying log
M24	*Trametes hirsuta*	Polyporaceae	decaying log
M25	*Trametes versicolor*	Polyporaceae	decaying log
M26	*Phellinus gilvus*	Hymenochaetaceae	decaying log
M27	*Lentinus tigrinus*	Polyporaceae	decaying log
M28	*Marasmius* sp.	Marasmiaceae	decaying log
M29	*Coprinus* sp.	Agaricaceae	cow dung
M30	*Cookenia* sp.	Sarcoscyphaceae	soil
M31	*Geastrum fimbriatum*	Geastraceae	dried leaves

The study site has a wide range of habitat for mushrooms. The highest number of species collected was recorded for the decayed logs with 15 species. These species were found optimally growing on rotten logs and woods which indicate the ability of the fungi to degrade woody substrates. This is followed by macrofungi collected from bark of living trees (7 species), soil (3 species), dried leaves (3 species), termite mount (2 species) and cow dung (1 species).

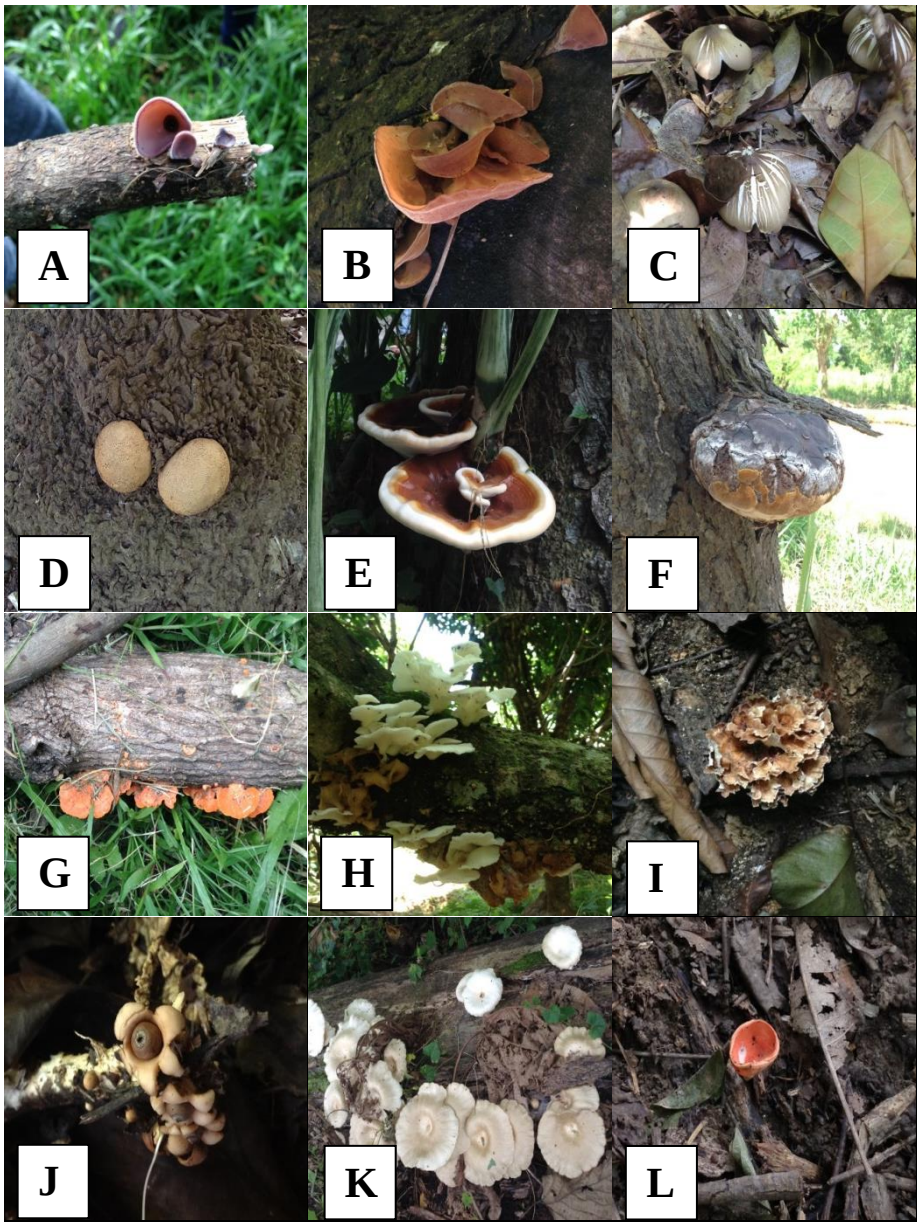

Figure 1. Representative specimens of macrofungal species collected (A) *A. polytricha* (B) *A. auricula-judae* (C) *T. striatus* (D) *C. cythiformis* (E) *G. lucidum* (F) *P. linteus* (G) *P. sanguineus* (H) *P. porrigens* (I) *C. cristata* (J) *G. triplex* (K) *L. sajor-caju* (L) *Coprinus* sp.

Based on the results of this study, Isabela State University located in Echague, Isabela can be considered to have diverse fungal resources in particular with macrofungi species belonging to 15 families and 20 genera. Apparently, families Ganodermataceae and Polyporaceae were the most abundant in the collection site. This study serves as the baseline information regarding macroscopic fungi present in Isabela State University. It is expected that through this study, the potential of these mycological resources will be helpful to establish more species of macroscopic fungi present in the province of Isabela, Philippines.

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