

Introduction to:
**Edible and medicinal wild mushrooms
in Lao PDR.**

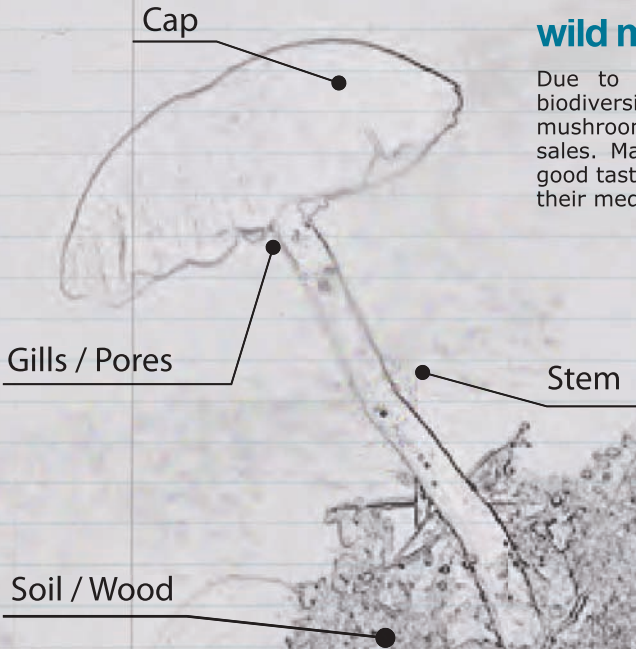
ABP: Agro-biodiversity Project

Mainstreaming Biodiversity in Lao PDR's Agricultural
and Land Management Policies, Plans and Programmes



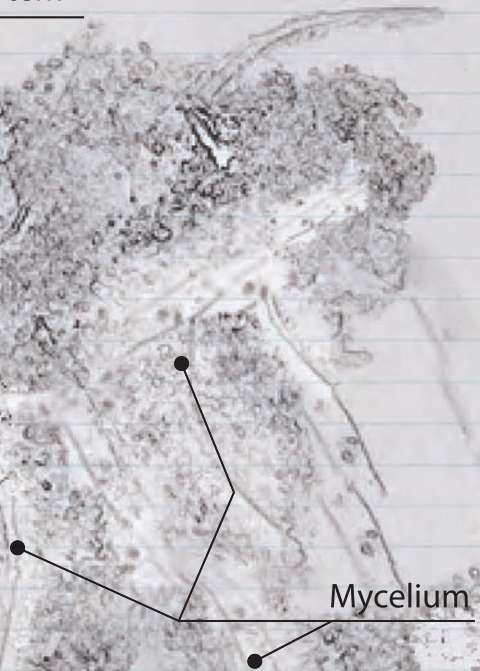
Rich diversity of wild mushrooms

Due to the rich ecological landscape and biodiversity of Lao PDR, a great number of wild mushrooms are available for consumption and sales. Many mushrooms are known for their good taste and nutritious values and others for their medicinal properties.



What is a mushroom?

Mushrooms are also called macro-fungi and are neither plants nor animals, but have its own kingdom: the fungi. They are characterized by having a nucleus, containing a rigid cell walls of chitin (like shells of insects) and missing chlorophyll (like the plants). The mushroom is the fruiting body, whereas the remaining consists of a kilometer long net of branching hyphae called mycelium.



Function of mushrooms

Mushrooms perform various functions that are essential to the ecological system, serving as growth stimulants, decomposers or parasites for a wide range of organisms and can be divided into the following groups.

Beneficial mushrooms

Good for trees

The Mycorrhiza mushrooms depend on trees to grow and produce their fruiting bodies. These mushrooms are connected to the roots of the host tree, exchanging nutrients that benefit both of them. This group of mushrooms contain most edible species such as the Weeping Milk Cap (*Lactarius volemus* s.l.), the Chantarelle (*Cantherellus cibarius*), the Greencracked Brittlegill (*Russula virescens*), *Amanita hemibapha* and some medicinal mushrooms.



Het Langok leuang
Mone Khai

Amanita hemibapha

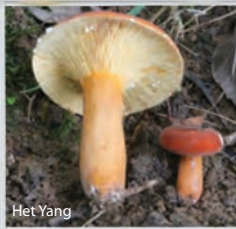


Tricholoma matsutake s.l. - a high value wild mushroom reaching a farm gate price of up to 70,000 kip per kg fresh.

ABP surveys revealed that annual income from wild mushroom sales can vary from 0.8 million kip (USD 100) to 2.9 million kip (USD350) per active household.

Het Wai

Tricholoma matsutake s.l.



Het Yang

Weeping Milk Cap
(*Lactarius volemus* s.l.)

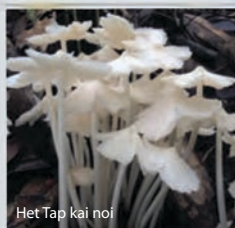


Het Set

Chantarelle
(*Cantherellus cibarius*)

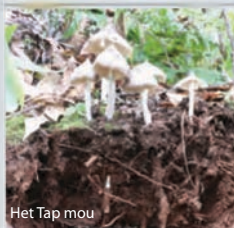
Good for termites

Termite Mushrooms (*Termitomyces* spp.) is a group of edible fungi that grow from mounds of certain species of termites. The Termite Mushroom breaks down cellulose of the incomplete digested comb-like plant material and the mushroom produces nodules eaten by the termites. Examples are *T. clypeatus* and *T. microcarpus*. In Laos this group has at least ten species, but yet to be fully described.



Het Tap kai noi

Termitomyces microcarpus



Het Tap mou

Termitomyces aff. clypeus

Good for health

Edible mushrooms have high nutritious values contributing to a balanced diet. Other mushrooms are known for their medicinal properties such as the Lauquered Bracket (*Ganoderma lucidum* s.l.) and the Shiitake (*Lentinus erodes*), both with some effects against cancer and *Isaria sinclarii*, against multiple sclerosis.



Het Linchue

Lauquered Bracket
(*Ganoderma lucidum* s.l.)

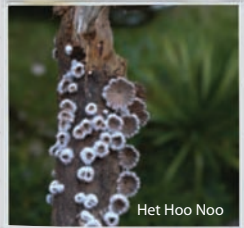
Good for composting

Saprophytic mushrooms is a group of mushrooms that break down dead plant materials including dead trees, thus essential for re-circling of plant nutrients. Many of the commercially grown mushrooms belong to this group such as the Straw Mushroom (*Volvariella volvacea*), the Oyster Mushroom (*Pleurotus ostreatus*), the Wood Ear (*Auricularia auricula* s.l.), the Splitgill (*Schizophillum commune*), and the White Rot Mushroom (*Lentinus squarrosulus*).



Het Nang rom

Oyster Mushroom
(*Pleurotus ostreatus*)



Het Hoo Noo

Wood Ear
(*Auricularia auricula* s.l.)

How many edible and medical mushrooms in Laos?

Currently, there are practically no scientific records of the edible and medicinal mushrooms of Lao PDR. However there are estimates of at least 100 species eaten by villagers and a much larger number are known in neighbouring countries. China has recorded a total of 6,000 macro-fungal species of which more than 1,000 species are listed as edible or used for medicine.

Hazardous mushrooms

Parasitic mushrooms

This group is mainly living on trees and few in insects causing the death of their hosts. This will normally occur when the host is stressed and weakened by other causes. Examples of this group are the "Tremella fulciformis" and the Chicken of the Wood (*Laetiporus sulphureus*) and *Ophiocordyceps nutans*, a potential biological agent against stinkbugs.



Ophiocordyceps nutans

Poisonous to humans

Many poisonous mushrooms look similar to edible species and as a result disasters happen when collectors mistakenly eat them. Although currently it has not been possible to give a scientific name to poisonous mushrooms in Laos, it is likely to find species of the genus *Amanita*, such as the deadly Destroying Angel (*A. virosa*), the Fool's Mushroom (*A. aterna*) Smith's *Amanita* (*A. smithiana*), *A. pseudoporphyria*, *A. exitalis* and *A. subjunquillea*.

How many are poisonous?

Local knowledge of poisonous mushrooms is very scarce and only a few local names have been given, such as Het Euart. China has recorded 200 poisonous species of which many are deadly. Some have accumulated effects such as *Trogia venenata*, which has caused many deaths in China due to the high level of barium.

This mushroom resembles *Trogia infundibiliformis* sold at Lao markets.



Green Spored Parasol
(*Chlorophyllum molybdites*)

can cause serious diarrhea and vomiting.

About the Lao Wild Mushrooms survey and future work

The Agro-biodiversity Project (ABP) is a GEF/UNDP funded initiative, technically supported by FAO. ABP is carrying out field surveys in Phoukout District, Xieng Khouang Province and so far recorded 50 local species as edible. However, at this stage there are significant uncertainties on local names and only a minor part has so far been given a proven scientific name. ABP is preparing a consolidated report on the survey results as well as a publication of edible mushrooms of Lao PDR.

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