

ความหลากหลายของเห็ดกินได้ใน 6 จังหวัด ของภาคตะวันออกเฉียงเหนือ ประเทศไทย

## BIODIVERSITY OF EDIBLE MUSHROOMS IN 6 PROVINCES OF NORTHEAST, THAILAND.

ศิริพงษ์ จำรัสพันธุ์

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**บทคัดย่อ:** การสำรวจความหลากหลายของเห็ดกินได้ในภาคตะวันออกเฉียงเหนือนี้ได้สำรวจพื้นที่ป่าใน 6 จังหวัด ได้แก่ อุดรธานี ศักดิ์สิทธิ์ นครพนม มหาสารคาม เลย และกาฬสินธุ์ ในปี 2544 - 2545 เพื่อศึกษาสัณฐานวิทยา จำแนก และสัมภานณ์ผู้สูงอายุในท้องถิ่นที่มีความรู้เกี่ยวกับเห็ด และร่วมเดินทางไปเก็บเห็ด เห็ดกินได้ที่สำรวจพบ มี 134 ชนิด อยู่ใน 27 วงศ์ เห็ดส่วนใหญ่เกิดบนดินในช่วงฤดูฝน ตั้งแต่เดือนพฤษภาคมถึงสิงหาคม ชนิดและจำนวนของเห็ดแตกต่างกันไปในแต่ละพื้นที่ ในพื้นที่จังหวัดอุดรธานีพบ จำนวน 72 ชนิด จังหวัดนครพนม พบ 51 ชนิด จังหวัดกาฬสินธุ์ พบ 50 ชนิด จังหวัดเลยพบ 43 ชนิด จังหวัดศักดิ์สิทธิ์ พบ 42 ชนิด และจังหวัดมหาสารคามพบ 39 ชนิด เห็ดที่พบในทุกพื้นที่ ได้แก่ *Tricholoma crassum*, *Amanita hemibapha* subsp. *Javanica*, *A.princeps*, *Russula eburneureolata*, *R.fragilis*, *R.delica*, *R.viresens* และ *R.densifolia* เห็ดที่พบมากในทุกพื้นที่ได้แก่ เห็ดหน้าขาว (*Russula eburneureolata*) เห็ดถ่าน (*R.densifolia*) และเห็ดนำ้มาก (*R.fragilis*) วงศ์ที่พบมากคือ *Russulaceae* พบมากที่สุด 28 ชนิด รองลงมาเป็นเห็ดในวงศ์ *Tricholomataceae* พบ 23 ชนิด, วงศ์ *Boletaceae* พบ 18 ชนิด, วงศ์ *Agaricaceae* พบ 10 ชนิด และ วงศ์ *Polyphoraceae* พบ 9 ชนิด ตามลำดับ เห็ดที่มีรสเด่นนิยมรับประทานมากในท้องถิ่น ได้แก่ เห็ดบด(เห็ดลม) (*Lentinus polychrous*), เห็ดไก่(เห็ดหล่มขาว) (*R.delica*), เห็ดตะไก(เห็ดหล่มหมากเขียว) (*R.aeruginea*), เห็ดละโงกขาว (*Amanita princeps*), และ ละโงกเหลือง (*Amanita hemibapla* subsp. *javanica*), เห็ดปลวก (*Termitomyces spp.*), เห็ดเผาฝ่าย (*Astraeus hygrometricus*), เห็ดเผาหนัง (*Gastrum saccatum*) และ เห็ดหูหนู (*Auricularia spp.*)

**Abstract:** A survey of the edible mushrooms in 6 areas of northeastern part of Thailand was conducted during 2001 - 2002. Morphology and classification were done. Elderly people were interviewed and guided the researchers to the field trip. One hundred and thirty-four species of edible mushrooms (27 families) were found. These mushrooms grew on earth during rainy season (May-August). The species and number of mushrooms varied in each area. Seventy-two species were found in Udonthani. Fifty-one species were in Nakhonphanom. Fifty species were in Kalasin. Forty-three species were in Loei. Forty-two species were in Sakonakhon and thirty-nine species were in Mahasarakarm. The species found in all areas were *Tricholoma crassum*, *Amanita hemibapha* subsp. *Javanica*, *A.princeps*, *Russula eburneureolata*, *R.fragilis*, *R.delica*, *R.viresens* and *R.densifolia*.

The common species in these areas were *Russula eburneureolata*, *R.fragilis* and *R.densifolia*. The biggest family was *Russulaceae* (28 species). The smaller were *Tricholomataceae* (23 species), *Boletaceae* (18 species), *Agaricaceae* (10 species), and *Polyphoraceae* (9 species), respectively. The most popular mushrooms in the local area were *L. polychrous*, *Russula delica*, *R. aeruginea*, *Amanita princeps*, *A. hemibapla* subsp. *javanica*, *Termitomyces spp.*, *Astraeus hygrometricus*, *Gastrum saccatum* and *Auricularia spp.*

**Literature Review:** Mushrooms contain high chitin, protein, vitamins, and minerals but low calorie. Many people use mushroom for their diet food and nourishment. Mushrooms contain high purine, so, they are not good for gout. On the other hand, mushrooms have chitin in their cell wall, so, they can be used for fat absorption, lower blood cholesterol, diet food and antibody stimulant (Sutachit and Sutachit, 2002). Many mushrooms have potential to be supplementary nutrients for good health such as *Lentinus polychrous* and *Boletus spp.*

The aims of this study were to study the biodiversity of the edible mushrooms in the 6 provinces of Thailand and to interview the elders in those areas about traditional utilization of these mushrooms.

**Methodology:** A survey of edible mushrooms in the northeastern part of Thailand was conducted during July 2001 – August 2002. Six forests in 6 provinces - Pandon-Pakho National Conservation Forest in Udonthani, Dongkunkam Phupha-am Kok-Yai Ladkang forest in Loei, Dong-grasan forest in Nakhon

phanom, Don phasee in Kalasin, Development and Education of Phupan Center in Sakonakhon, and Dong-Yai forest in Mahasarakarm- were surveyed. Elderly people and others with knowledge of mushrooms were consulted and accompanied the researchers to the forests. The interviews were about local names, uses of the mushrooms, and how to use them. Photographs of mushrooms were taken and morphology of each mushroom was characterized. Spore printing and spore shape of some mushrooms was examined under microscope. The preservation of mushrooms was done and kept at Rajabhat Institute Udunthani, Loei, Mahasarakarm, Kalasin, Nakon phanom and Sakonakhon. Finally, The scientific names were identified according to Mushrooms and Macrofungi in Thailand (Soytong, 1994), Mushrooms in Thailand and Mushroom Culture Technology (Chansrikul, 1999), Mushrooms and Toadstools in Thailand (The Royal Academy Institute, 1996) and Mushroom (Laessoe, 1998).

**Result, Discussion and Conclusion:** One hundred and thirty-four species of edible mushrooms were found in these areas. Most of these mushrooms grew on rich soil during rainy season (May-August). The species and numbers of mushrooms varied in each area. Some mushrooms could be found in all studied areas and some were found only in a specific area. Seventy-two species were found in Udonthani. Fifty-one species were in Nakhonphanom. Fifty species were in Kalasin. Forty-three species were in Loi. Forty-two species were in Sakonakhon and thirty-nine species were in Mahasarakarm. The species found in all studied areas were *Tricholoma crassum*, *Amanita hemibapha* subsp. *Javanica*, *Amanita princeps*, *Russula eburneureolata*, *R. fragilis*, *R. delica*, *R. viresens* and *R. densifolia*. Most mushrooms grew in soil which are normally called ground mushrooms. Some species were grew on dead wood under shade. The mushrooms were found under 27 families. The biggest family was Russulaceae (28 species). The smaller were Tricholomataceae (23 species), Boletaceae (18 species), Agaricaceae (10 species), Polyporaceae(9 species), Amanitaceae(7 species), Cantharellaceae (5 species), and Auriculariaceae (5 species), respectively. The most popular mushrooms in the local area were *Lentinus squarrosulus*, *L. polychrous* (Fig.1), *Russula delica*, *R. aeruginea*, *Amanita princeps*, *A. hemibapla* subsp. *javanica*, *Termitomyces* spp., *Astraeus hygrometricus*, *Geastrum saccatum* and *Auricularia* spp. Some edible mushrooms found in these areas were not common in markets such as *Clitocybe gibba* (Fig. 2), *Agaricus sylvicola* (Fig.3), *Scytinopogon echinosporus* (Fig.4), *Marasmiellus albuscorticis* (Fig. 5), *Amanita umbrinolutea* (Fig. 6), *Suillus pictus*, *Austroboletus subflavidus* syn. *Porphyrellus subflavidus*, *Scleroderma sinnamariense* and *Alpova trapei*. These mushrooms were good types of vegetables. Some species were bitter such *Boletus* sp., *Lactarius flavidulus*, *L. piperatus* and *L. turpis*. *Termitomyces* spp. were edible and delicious. They also contained high protein, vitamins and minerals. The special mushroom, *Calostoma* sp., was fresh eaten and could reduce fevers and thirsty.

Twenty-five species found only in Udonthani including *Auricularia fuscosuccinia*, *Lentinus* sp., *Hygrophorus vitellinus*, *Clitocybe gibba*, *Marasmiellus albuscorticis*, *Omphalina umbellifera*, *O.luteicolor*, *Agaricus macrosporus*, *A. sylvicola*, *Leucocoprinus brebissoni*, *Lepiota oreadiformis*, *Macrolepiota gracilenta*, *M.rhacodes*, *Paneolus canpanulatus*, *Hebelona crustuliniforme*, *Botetus chromapes*, *B.camprestris*, *B.sp.*, *Leccinum rugosiceps*, *Tylopilus pseudosceaber*, *Lactarius cilicioides*, *L.sp.*, *Russula amygdaloïdes*, and *Peziza vesiculospora*. Seventeen species only found in Kalasin were *Cantharellus minor*, *C.odoratus*, *Lentinus strigosus*, *Clitocybe flaccida*, *Tricholoma* sp., *Termitomyces globulus*, *T. shimpéri*, *Pluteus aurantiorugosus*, *Leucocoprinus otsuensis*, *Boletus* sp., *Lactarius vellerens*, *Russula* sp., *Russula crustosa*, *Pisolithus areanrius*, *Calostoma* sp., *Buvista* sp., and *Leotia lubrica*. Eight species only found in Loei were *Trametes cingulata*, *Collybia dryophila*, *Panus conchatus*, *Pleulotus ostreatus*, *Termitomyces albumiosus*, *T. eurrhizus*, *Amamita ceasarea*, and *Leucocoprinus cepaestipes*. Five species especially found in Mahasarakarm were *Trametes hisuta*, *Termitomyces fuliginosus*, *Leucocoprinus zeylanica*, *Porphyrellus fusisporus*, and *Bulgaria juanicum*. Five species only found in Nakhonphanom were *Clavulina vermicularis*, *Steccharinum rawakensis*, *Polyporus luberaster*, *Amanita fluva*, and *Clitocybe geotropa*. Only one species found in Sakonakhon was *Coltricia cinnamomea*.

Four species; *Dictyophora indusiata*, *D. multicolor*, *Copelandia cyanescens* and *Psilocybe cubensis*; were not eaten in local area. However, there were some foreigners went to local area and took *Copelandia cyanescens* and *Psilocybe cubensis* as recreation mushrooms for illusion.

Most of villagers still have traditional knowledge about mushrooms. Local people use many mushrooms as food for strength and good health. Moreover, many mushrooms were medicinal for releasing cold, fevers, painful joint, and digestive system (Chamratpan, 2003). Some mushrooms were known as anticancer such as *Lentinus polychrous*, *Ganoderma lucidum*, and *Schizophyllum commune* (Sutachit and Sutachit, 2002).

*Amanita phalloides*, an inedible mushroom , was similar to *A. princeps* which was edible but its stalk was shorter. The traditional way to test the toxic of mushroom was boiling rice with the mushrooms. Change in the color of rice indicated that mushroom was inedible.

The two notices for eating mushrooms were following; it may not be eaten with alcohol because its albumin will be harden, Some person may have an allergy to some mushrooms. These mushrooms can cause rash on skin and diarrhea.

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**Fig. 1 *Lentinus Polychrous***



**Fig. 2 *Clitocybe gibba***



**Fig. 3 *Agaricus sylvicola***



**Fig. 4 *Scytinopogon echinosporus***



**Fig. 5 *Marasmiellus albuscorticis***



**Fig. 6 *Amanita umbrinolutea***