Mushroom Poisoning Problem in Nepal and Its Mitigation

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Abstract

Nepal is rich in mushroom diversity. Local people have been using wild mushrooms in their diet as well as a source of income, but they do not have proper knowledge about identification of edible and poisonous mushrooms. This practice has caused severe poisonings and even death. For many, the negative effects of wild mushrooms outweigh their positive value. The reports of death from the various parts of Nepal come at an alarming rate, but still a large proportion of such incidents go unreported by the local news. There are numerous myths about mushroom poisoning, some of which have significant meaning and value in using wild mushrooms. An effort is made herein to document the records of such fatal accidents, reported recently from daily national newspapers, as well as from traditional Nepalese myths.

KEY WORDS: Nepal, mushroom poisoning, myths

Introduction

Nepal is rich in biodiversity due to the variation in topography, climate, and latitudinal changes that are found within a short distance. The prevalence of interesting mycodiversity in this Himalayan region has been attracting many enthusiastic investigators over the years. The collection and survey on mycoflora from the Nepalese Himalayan belt was first done by J. D. Hooker from eastern Nepal in 1850 (Adhikari, 1990b; 1994; 1995c). Nepalese mycoflora includes 585 genera and 1822 species. These wild species include the fungi of various economic importance (edible 110 sp, poisonous 48 sp, medicinal 17 sp, mycorrizal 50 sp, decoration 12 sp, and parasitic 970 sp. (Adhikari, 1990a; 1991; 1995a; 1995b; Adhikari and Manandhar, 1992; Pawsey, 1989).

Nepal is regarded as a country of ecological mosaics. The different ethnic groups in Nepal possess rich knowledge of local Non-Timber Forest Products (NTFPs) as a cultural heritage; these are listed as food, medicine and on various socio-religious purposes. In Nepal various mycophagous groups such as Serpa, Tamang, Gurung, Magar, Tharu, Danuwar, Newar, Kami, Damai, and Sarki are directly concerned with the collection and consumption of mushrooms historically due to mushrooms' delicious taste. Besides, these wild mushrooms are also locally traded as minor forest product at local market. Out of 110 species of edible mushrooms, 40 species are sold in local markets every season.

Interestingly, it is generally believed that throughout history, Brahmins (the so-called "upper caste") were not to use mushrooms. However, nowadays Brahmins have also started to cultivate and use various mushrooms.

Some Nepalese Beliefs and Myths about Wild Mushrooms

- Poisonous mushrooms discolor silver coins during cooking; edible mushrooms do not.
- Poisonous mushroom will change an onion from its usual color when cooked with it.
- Mushrooms eaten by cats, dogs, and monkeys are always safe.
- Mushrooms eaten by snails or insects are considered safe.
- Poisonous mushrooms will lose their poison when cooked with some vinegar.
- Mushrooms lose their poison when cooked with timur (*Zanthoxylum alatum*).
- Mushrooms having a fruity smell are safe to eat.
- Mushrooms with bitter, acrid, or pungent taste are poisonous.
- Smooth-capped mushrooms are edible.

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- Mushrooms with a rough warty cap or rough texture are poisonous.
- Violet and dark-red-colored mushrooms are poisonous.
- Soil-inhabiting mushrooms are poisonous.
- Mushrooms growing on live trees or dead logs are edible.
- Mushrooms growing on decaying straw or manure are poisonous.
- The developmental stage of a mushroom also determines the toxicity.
- Mushrooms that produce latex upon being injured are poisonous.
- Mushrooms whose fruiting body changes color (bruises) after touch are poisonous.
- An edible mushroom can become poisonous through some strange influence exercised by snakes or amphibians.
- The first picked mushroom should be offered to God so that subsequent mushrooms will be safe.
- Mushrooms growing in a cluster or group are edible, but those growing alone are not.

These beliefs were collected from many different wild mushroom collectors and from different parts of the country. Some interesting thoughts regarding mushroom poisoning have also been collected during the training conducted in various parts of Nepal to strengthen economic status of poor Nepalese farmers. Many know these methods cannot absolutely be counted on to determine the poisonous from the edible, but to some these beliefs are still widely regarded as accurate.

Recorded Mushroom Poisonings in Nepal, May–July, 2008

Mushroom poisoning problems are not new to Nepal. Every year dozens of people die; hundreds are admitted to hospital for treatment, while hundreds more rely on local treatments. During the rainy season, poor people (the so-called "lower caste") rely on wild mushrooms as a much needed food source and also as a flavorful addition to their diet. Although they have vast knowledge about the regional wild mushrooms, sometimes serious accidents occur. Whole families have been wiped out by consuming poisonous wild mushrooms. Many are not afraid of using wild mushrooms despite knowledge of the risks associated with the poisonous effects of some mushrooms. Likewise, many local people are confident that they can recognize poisonous mushrooms even though they may have witnessed their neighbors dying due to consumption of wild poisonous mushrooms.

Undocumented and unrecorded mushroom poisonings are much more common than the published incidents because so many cases occur in very remote areas. News reporters are unable to reach many victims in remote areas in order to collect information. At the same time, there is vast knowledge about wild mushrooms among local users, and this may be far beyond that of professional mycologists. Therefore, it is of acute importance to docu-

Left: A mushroom merchant sells packaged mushrooms in the street.
Right: A professional mushroom collector weaves Perungo.

ment and conserve traditional local knowledge before it is lost permanently.

Few published reports about mushroom poisonings reach the national newspapers, but those that were reported from May-July, 2008, are presented here with the source of the report.

1. Five family members were injured (conditions of two were serious) due to consumption of wild mushrooms in Sankhuwasabha District (*Kantipur*, May 23, 2008).
2. Eight persons (five from the same family) were admitted to hospital following consumption of wild mushrooms in Udayapur District (*Kantipur*, May 24, 2008).
3. Five family members were admitted to B.P. Hospital due to consumption of wild mushroom in Biratnagar (*Kantipur*, June 2, 2008).
4. Four family members died during treatment in B.P. Hospital for mushroom poisoning in Dharan; a fifth person reported no ill effects (*Kantipur*, June 5, 2008).
5. Four family members died during the treatment in hospital, and the condition of one child of age 6 was serious due to consumption of wild mushrooms in Palpa (*Kantipur*, June 6, 2008).
6. Two family members died during treatment in local health center due to consumption of wild mushrooms in Sindhuli (*Kantipur*, June 19, 2008).
7. Six persons were injured and admitted in District Hospital in Dhadhing (*Gorkhapatra*, June 22, 2008).
8. Five persons from the same family were injured due to consumption of wild mushroom in Jajarkot (*Annapurna Post*, June 30, 2008).
9. Two children died in Gulmi and Palpa. In a separate incident, four persons were injured and admitted to a hospital in Gulmi. It was reported that one of the victims belonged to a family that had four members previously die from mushroom poisoning. (*Kantipur*, July 7, 2008)
10. Ten persons were injured, eight from the same family, due to consumption of poisonous mushrooms in Khandbari Municipility-13, Sankhuwasabha District (*Annapurna Post*, July 7, 2008).
11. Five persons, including three children, were admitted in B.P. Hospital, Dharan, due to consumption of poisonous mushrooms in Panchther District (*Kintipur*, June 11, 2008).
12. A female child died and her mother was admitted to Mission Hospital due to consumption of wild mushrooms in Chahara-9, Palpa District (*Annapurna Post*, July 13, 2008).

Mitigation

Many reports have been published about the deaths caused by mushroom poisoning. There needs to be an immediate effort to prevent future loss of life. To date, no significant action in this regard has been undertaken by the government or other concerned stakeholders. Here are a few approaches recommended to mitigate the effect of mushroom poisoning:

- An awareness program should be initiated using radio, television, and newspapers to make people better aware of the hazards of mushroom poisoning.
- Education and training leading to financially sustaining employment should be given to the poor people, ultimately decreasing their reliance on wild mushrooms for income.
- Mushroom cultivation training should be given to the people throughout the country so that they can rely more on edible cultivated mushrooms and less on wild mushrooms. Likewise, mushroom cultivation techniques should be included in school and college-level curricula.
- Spawn production laboratories are not sufficient or are confined to urban areas. Spawn production laboratories should be established in different parts of the country so that growers can obtain spawn easily and at a nominal price.
- Mushroom collection centers should be established in different part of the country to receive harvested, commercially cultivated mushrooms.
- Government resource persons (such as agriculture extension agents in the U.S.A.) should be available in different parts of the country to assist growers in solving their problems.

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