

ELEMENTS OF THE PUREPECHA MYCOLOGICAL CLASSIFICATION

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ABSTRACT.— During two years of field work the authors studied the knowledge and uses of the mushrooms among the Purépecha (Tarascan)¹ Indians of Lake Pátzcuaro in Michoacán (Mexico). A folk mycological classification was obtained through interviews and samples collected in the field with the aid of local informants and the use of photographs of the mushroom species from the region.

The mushrooms are divided in 11 main groups or taxa arranged in three general classes. The overall classification is made on the basis of the properties and attributes of the mushrooms that the Purepecha recognized.

The Purepecha mycological classification demonstrates principles analogous to those which govern folk taxonomies. Nevertheless there are some differences with other biological classifications found among other indigenous groups. These differences are discussed in the present paper.

INTRODUCTION

Traditional knowledge of indigenous groups regarding mushrooms is an aspect of ethnobotany which is little studied. Ethnomycological interests have focused mainly upon the use of hallucinogenic or edible mushrooms. It is only recently that other aspects such as traditional classification have been dealt with. One might think, as some authors state, that algae and mushrooms are omitted from the classification systems of illiterate peoples since they are species of organisms that may be identified solely on the basis of characteristics too small to be seen without the use of a 10x hand lens. Nevertheless, this does not always occur. Among the Purépecha Indians of Lake Pátzcuaro in Michoacán, Mexico, there is ample knowledge of the mushrooms that grow in the region. This knowledge comprehends their mycological characteristics as well as their attributes and properties, which are used in the classification of these organisms. In this paper some elements of this system are presented and commented on. This study together with that regarding the ways in which mushrooms are used, forms part of a larger research project of Purépecha ethnobiology. Some results of this project have already been published (Toledo et al. 1980; Mapes et al. 1981).

THE STUDY AREA

The Lake Pátzcuaro region is located in the state of Michoacán on the transversal neo-volcanic axis. Physiographically speaking, it is an endorreic basin that is part of a lacustrine basin system. The surface area is approximately 1000 square km, 10% of which is the lake itself. The basin is delimited by several mountain systems with altitudes

ranging from 2000 m (the altitude of the lake) to 3200 m. The climate is temperate with a rainy season extending from June to September.

The ecosystems of the region are represented mainly by pine and broadleaf forests in varying degrees of association, as well as by fir forests on the highest peaks. There are also many secondary associations.

There are nearly 80,000 inhabitants distributed throughout some 100 towns and villages in the basin. The indigenous population constitutes about 25% of the total, living in 23 communities. At least 90% of the indigenous population is bilingual.

The Purépecha from the lacustrine basin of Pátzcuaro are mainly dedicated to agricultural and fishing activities which are combined with some other activities such as hunting, gathering, and the manufacture of handicrafts. These activities are the basis of subsistence (Toledo et al. 1980).

It is important to point out that the Purépecha, since the Prehispanic times have developed a great knowledge about the plants present in the region. Nowadays this knowledge has persisted and more than 50% of the species present in the region are still known. On the other hand plants are used to satisfy the basic needs of health, energy, housing and feeding (Toledo et al. 1980).

MATERIALS AND METHODS

The ethnomycological information was obtained through interviews and samples collected in the field with the aid of bilingual men and women of different communities. It is important to point out that both sexes have a very similar degree of knowledge about the properties and uses of mushrooms in general. Nevertheless some differences were detected in the ethnomycological knowledge among different communities such as Ichupio, Ucasanástacua, Janitzio, etc., places in which mushrooms are practically unknown. This contrasts with the great tradition of knowledge and use of mushrooms present in the communities of San Francisco Pichátaro and Cuanajo.

When we were in the field collecting specimens many mushrooms were photographed *in situ*. The majority of the photographs (12.5 x 8.5 cm prints) were taken in color; these were the main tools used in searching for traditional classification systems of mushrooms.

The people were asked to group or to separate all the "kinds" of mushrooms shown in the photographs according to their similarities or differences, and to name them in their own tongue. The criteria used to identify the mushrooms were also asked. This gave the necessary basis to construct a preliminary model of Purépecha classification.

RESULTS

Generally the Purépecha consider mushrooms as something apart from plants and animals, saying 'mushrooms are not plants'. They are the 'flowers of the ground'. Mushrooms as a whole are categorized as *terekuicha*, which means 'all the mushrooms that are found on earth'. The singular form of *terekuicha* is *terekua* although in some cases the latter is changed to *tereko* or *teko*, especially in combination with other words to form a single term such as *pantereko* or *panateko*.

Interestingly, the use of a single term to denote mushrooms as a whole is something not exclusively Purépecha. Other researchers have also found this with other indigenous groups in Mexico. For example Brown (1972) reports the use of the word *cikinte*, meaning mushroom, among the Huastecos. According to Laughlin (1975) the Totzile Indians identify mushrooms in general by the name *canul te tik*. Escalante (1973) found *ccho* to be used by the Matlazincas Indians. Wasson and Wasson (1957) mention that the Mazateco Indians of Huatla, Oaxaca say *tai*, and *nanacatl* or *nanacate* are employed by the Nahuas.

The *terekuicha* are divided into three classes. Mushrooms described as fleshy, with ribs or gills under the cap belong to the first. This corresponds to the Order Agaricales. The second class are those mushrooms which are fleshy, and have pores under the cap. These correspond to the Family Boletaceae; the third class of mushrooms are fleshy, hard or gelatin-like, but having neither gills nor pores when fleshy. This is a heterogenous group.

These three classes are sub-divided in turn into a total of 11 groups. The criteria used as a basis for identifying the members of these groups are shape, color, consistency while fresh, as well as habitat. As is known, this is precisely the criteria uses in occidental mycological classification to identify different species of mushrooms (Guzman 1977, 1978).

The different groups that the Purépecha recognized are *kutserekua* or *kux tereko*, which means, 'pig-mushroom', a species known in Spanish as *trompas* 'pig snouts' or simply 'snouts', 'all that raises itself are snouts'. In the *tepajkua* group, which means 'pasture mushroom', are those which grow in the pastures, hence the Spanish name of *llaneritos* or *llaneros*; they have little brown ribs and are round. The *tzupata* group, which means 'flower' is known in Spanish as *flor de durazno*, 'peach flower', because if they are damaged or crushed they smell like a peach.

The group *tiripiti terekua* which means 'golden mushrooms', are known in Spanish as *amarillos*, 'the yellow ones'; and are enclosed by a universal veil, 'a little cloth surrounds them like an egg'.

The group *ts'aph'k'i*, which means 'sparrow hawk', are those which have dark brown markings on the cap like the markings of the sparrow hawk, 'They have a long leg'. These mushrooms are also known as 'little umbrellas' because they grow in bunches but are united at the base.

The *pantereko* group or *cemitas* includes the mushrooms shaped like large pieces of bread. They are also known as *panzas de buey*, 'ox's belly'.

The *sirat angants terekua*, literally meaning in Purépecha 'smoke cap', are 'those which give off something like smoke'; they are also known by the names of *charamusquitas* or *orejas ración*, 'rat's ears', due to their peculiar shape.

The *k'uin antsir terekua* or *patitas de pájaro*, 'little bird's feet', in Spanish are those which have the shape of the feet of birds. They have many branches.

The *tetaras* are those which have little or no leg (stem). The *tamanda*, which means 'rotten trunk', are those which grow in the trunks of trees. They are the wooden mushrooms.

In each one of the previously mentioned groups one or more species of mushrooms are found. Generally the genuine species (Berlin et al. 1974) is referred to, the representative one that everybody knows. In this model the Purépecha make various groupings with genuine species and with others that are similar. It is important to know that in forming these groups the mushrooms that are included by comparison have to share certain characteristics with the main mushroom. Within each one of these groups the Purépecha are able to identify the edible (the good ones) and inedible (the bad ones) mushrooms and the mushrooms that 'make you drunk'.

Thus we have in the *kux terekua* group the following species: *Hypomyces lactifluorum* that is the *kutsereko* genuine mushroom and *Gomphus floccosus* and *Hygrophoropsis aurantiaca*. The 'bad mushrooms' of this group are *Lactarius deliciosus*, *Lactarius salmonicolor*, *Lactarius vellereus* and *Lactarius piperatus*. It is necessary to emphasize that the first two species are edible (Guzman 1978); nevertheless, these are recognized by the Purépecha as 'bad species'. All of these mushrooms are orange in color and have the shape of a snout.

The main mushroom of the *tepajkua terekua* group is *Agaricus campestris* which is edible and the 'bad' mushroom is *Agaricus xanthodermus* which is toxic. 'It is a relative of the *llanero* mushroom' (*A. campestris*), the Purépecha say.

In the *ts'upata* group the Tarascans identify *Hygrophoropsis auriantiaca* which does not smell like a peach, but looks very much like *Cantharellus cibarius*, a mushroom which we have not collected yet from the Pátzcuaro region and which reportedly does have a peach-like odor. The 'bad' mushroom of the *ts'upata* is not known.

In the *tiripiti* group the principal mushroom is *A. caesarea* which is edible and has a covering called a *volva*. It also has a veil under the cap which covers the gills and forms a ring around the foot of the mushroom when it matures.

The 'bad' mushrooms of the *tiripiti* group are the equivalent to the following species of *Amanita*: *A. gemmata*, *A. muscaria* subsp. *flavivolvata*.

The *ts'aph'i* group includes only *Macrolepiota procera* which is a complex of at least two species; other Spanish names for *M. procera* translated literally from the Purépecha are 'little eagle', 'sparrow hawk mushroom', 'quail mushroom' and 'little umbrella'.

The principal or genuine mushroom of the *paxakuas* group appears to be *Lyophyllum decastes*, other examples are *Armillariella polymyces* and *A. tabescens*, all of which are edible. Nevertheless, some people separate the species of *Armillariella* into different classes of *paxakuas* and they are given the name of *uachitas*, 'little clusters'. There are also 'bad' *paxakuas* which have been identified as *Naematoloma fasciculare* and other species of *Naematoloma* that have not yet been studied but are toxic.

The *pantereke* group includes three genera and six species in the family Boletaceae: *Boletus edulis*, *B. frostii* and *B. aestivalis*, *Suillus lutens*, *S. granulatus*, and *Xerocomus spadiceus*.

Different classes are included in the *sirat angants terekua*: the *sirat angants urapiti* which corresponds to *Helvella crispa* and known in Spanish as *orejas de ratón blanca*, 'white rat's ears', and the *sirat angants turipiti* or *orejas de raton negras*, 'black rat's ears', which have been identified as *Helvella lacunosa*. Both species are edible and their bad form is *kaucha sirat angants* which is *oreja de ratón borracha*, 'drunk rat's ear'.

The *k'uin ants'ir terekua* includes mushrooms belonging to the Family Clavariaceae and especially the genus *Ramaria* which is the most important. These mushrooms constitute a taxonomic complex of various unstudied species.

The mushrooms of the *tataras* group are roundish, 'with little or no leg' (stem) as the informants say. They are white when young. The main or genuine mushroom is *Lycoperdon* with three species *L. umbrinum*, *L. perlatum*, *L. pyriforme* also known as *trompitas de venado*, 'deers muzzle'. All of these grow in pine broadleaf forests. Other edible *tataras* which grow only in pastures are *Vascellum intermedium* and *Arachnion album* identified in Purépecha as *burkuatsita*. *Calvatia cyathiformes* known as *patarata* is edible when young and used for medicinal purposes when adult.

The *tamanda* group includes all mushrooms that grow in tree trunks such as *Fuligo septica* called *tamanda kuatsita* in Purépecha which is the genuine or good mushroom. Species of the family Polyporaceae include *Polyporus azureus*, *P. versicolor* and *Lenzites betulina*. *Tremella lutescens* which is not edible and known as *flor de palo* is also in this group. Lichens or *t'sakapu ts'ipata*, meaning *flores de piedra*, 'rock flowers', or *anatapu ts'ipata* meaning *flores de árbol*, 'tree flowers', fall into this group as well. Thus the *tamanda* group is taxonomically the most complex since it includes at the same time myxomycetes (*Fuligo*), mushrooms from the Families Polyporaceae, Tremellaceae and Lichens.

It is important to note that the Purépecha can refer to each of the mushroom groups recognized by their respective names without having to say the word *terekua*. Thus they speak simply of the *tiripiti*, the *tataras*, the *tamanda*, the *k'uin ants'ir*, etc.

A schematic representation of the general Purépecha mycological classification is shown in Figure 1.

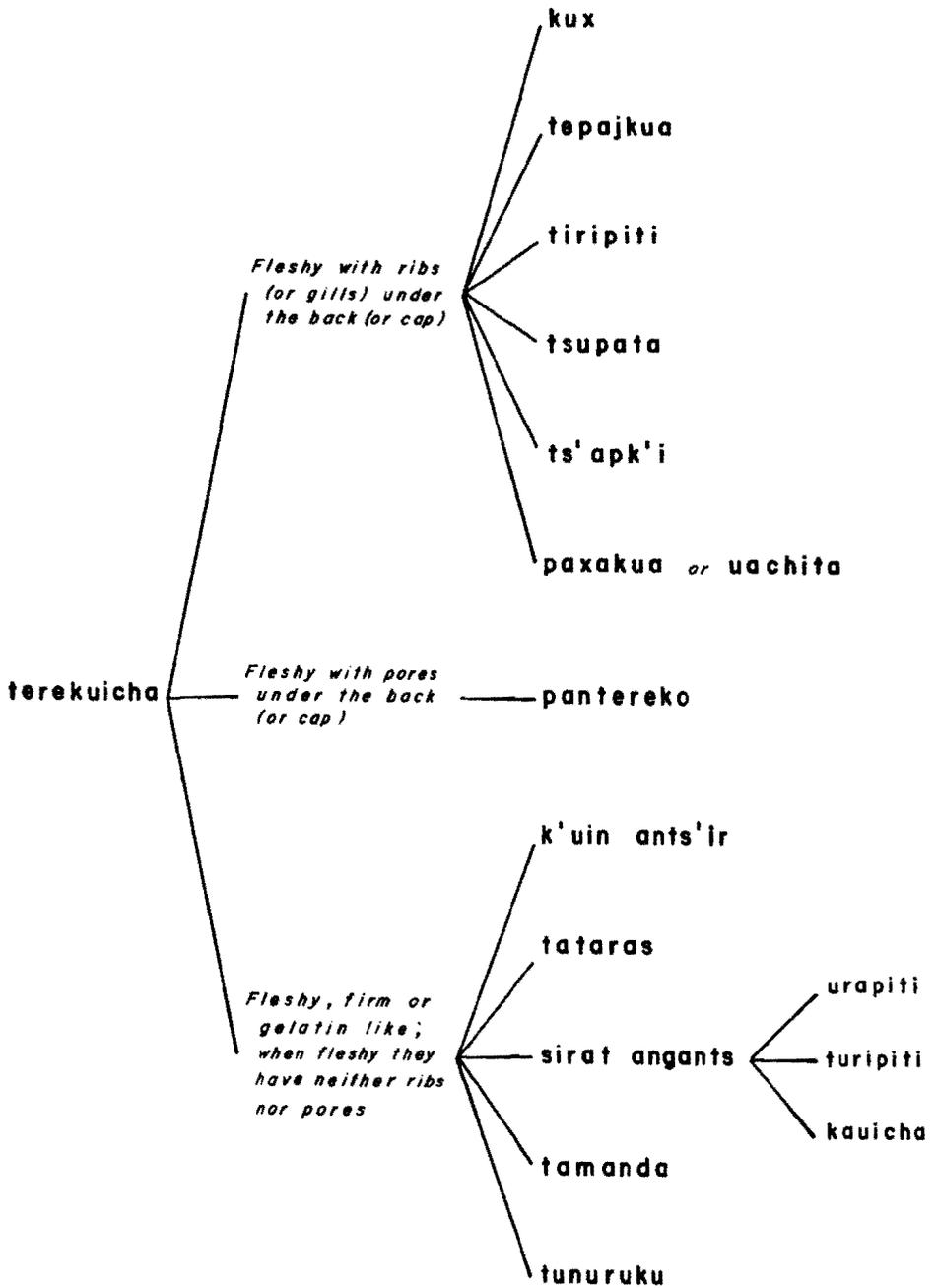


FIG. 1. Schematic representation of the Purépecha mycological classification.

DISCUSSION

The Purépecha classification system for mushrooms described above appears to be similar to biological classification systems found among other indigenous groups in Mexico (Berlin et al. 1974; Berlin 1977) and in other countries (Diamond 1966 in New Guinea and Berlin 1976 in Brasil and Peru).

The Purépecha mycological classification system may be considered atypical since it does not fully demonstrate all the general principles which govern the folk classifications. Nevertheless it fulfills to a large degree these principles.

The mushroom groups: 1) *kux tereko*; 2) *tepajkua*; 3) *tsupata*; 4) *tiripiti*; 5) *ts'apki*; 6) *paxakua*; 7) *pantereko*; 8) *sirat angants*; 9) *k'uin ants'ir*; 10) *tataras* and 11) *tamanda* seem to correspond to the generic taxa. These taxa are those which the majority of the people can recognize easily as 'the different classes of mushroom that exist'. In addition, taxa are always named with primary lexemes which can be analyzed linguistically. For example *kux terekua*, which means 'pig snout' mushroom, or *tepejkua terekua*, which means 'pasture'.

As Jacobson affirms (according to Escalante 1973) these terms, as with all the generic taxa of classification, may designate two things: contiguity or similarity as indicated by the *tepajkua* or 'pasture mushrooms', because they are found in pastures, or the case of the *kuxtereko* or 'pig snout' mushroom because they look somewhat like a pig snout. And in this way the names are easier to remember and can be applied regularly to the mushrooms.

The three classes to which these 11 groups belong based on the presence or absence of gills, and pores under the cap seem to correspond to the taxa life-forms. The Purépecha names of each one of these taxa were not recorded.

Under the generic taxa some mushroom groups seem to correspond to specific taxa. Such is the case of the *sirat angants*. These correspond to three different species of the *Helvella* genus. This is the case of a close relation of correspondence between occidental taxonomy and folk taxonomy. It may be observed in Purépecha classification that the mushrooms belonging to classes one and two (fleshy with ribs or gills under the cap and fleshy with pores under the cap) correspond to the Order Agaricales (for the first) and to the Family Boletaceae (previously Order Boletales) (for the second) respectively, according to the modern mycology. The *tataras* correspond to the Order Gasteromycetes.

The specific taxa in the folk taxonomies are designated with secondary lexemes wherein one of its members indicates the category subordinate to form in question (example *sirat angants* or 'smoke cap'). And the other member functions as a classifier (*urapiti* or white). In other cases such as *paxakua*, *tepajkua*, or *kutserekua*, specific taxa are not clearly defined. In a generic taxon such as *kux tereko* one or many species of mushrooms are found. One of these species is the main or genuine species and the other species included have to share certain characteristics with the main mushroom.

It can be compared with the type-specific plant nomenclature in Tzeltal described by Berlin et al. (1974); "In nearly all Tzeltal specific contrast sets one of the members of the set is considered as the focal or most dominant member". In Purépecha however the members of these specific sets are not named with secondary lexemes. At least they were not detected during the field research.

In regards to the corn fungi *Ustilago maydis* commonly known as *cuitlacoche*, which parasites the ears of corn, it is identified among the Purépecha of the Pátzcuaro basin as *tukuru*, *puax*, *tecolote*, *viejito*, *hongo de milpa*. Interestingly enough the Purépecha (at least those from Pátzcuaro) do not consider *Ustilago maydis* a mushroom. The photographs of these fungi were always put aside with the explanation that it was part of the corn. This mushroom is an edible one and is sold at the market in the town of Pátzcuaro.

The mycological classification presented here is a primary interpretation of the field data. Probably other interpretations can be made.

There are certain aspects of this classification system which are particularly interesting. For example, the unique beginner is named and is polysemic; names have not been recorded for the taxa in the life-form category, and various specific taxa are not clearly defined.

It should be noted that this classification system shares similar aspects with other non-biological ones, especially those referring to soils. These classification systems are considered atypical as well because the unique beginner is well defined, named and is polysemic. The taxa at the level two (life form) are undefined and not named. These classifications have been studied among the Purépecha by Barrera (1981) and Williams and Ortiz-Solorio (1980) among several peasant groups.

All of the foregoing draws attention to the need to study the folk classifications of lowly organisms such as mushrooms, mosses, and other non-biological entities. Doubtless this will enrich the discussion concerning the universality and validity of the general principles of folk taxonomies which has been developing over recent years.

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NOTES

¹ The Indians of Lake Pátzcuaro have named themselves Purépecha which means 'the common people'. Tarascans has been the most

frequently used word to name them. Originally this word was used by the Spaniards during the conquest and it has a different meaning.