

## A REVIEW OF THE ETHNOMYCOLOGY OF INDIGENOUS PEOPLE IN BRAZIL AND ITS RELEVANCE TO ETHNOMYCOLOGICAL INVESTIGATION IN LATIN AMERICA

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### RESUMEN

**REVISIÓN DE LA ETNOMICOLOGÍA DE PUEBLOS INDÍGENAS DE BRASIL Y SU RELEVANCIA RESPECTO A LAS INVESTIGACIONES ETNOMICOLÓGICAS EN AMÉRICA LATINA.** *Rev. Mex. Mic.* 17: 11-16 (2001-2003). El objetivo de este trabajo fue realizar una revisión de los estudios etnomicológicos en Brasil desde el siglo XVII hasta la actualidad. Las informaciones sobre las especies, nombres indígenas, uso y referencia bibliográfica fueron sistematizadas y clasificadas de acuerdo a un criterio etnobiológico contemporáneo (utilitario o cognitivo). Se identificaron dos grandes períodos que corresponden a la propia evolución de la disciplina. El Período Utilitario de estudios eventuales, descriptivos y anecdóticos, y el Período Cognitivo de estudios sistemáticos descriptivos. La revisión demuestra que la mayoría de los grupos indígenas de Brasil estudiados son no-micofílicos, corroborando que la no-micofilia puede ser un patrón generalizado en las tierras bajas tropicales de Latinoamérica. Los grupos indígenas brasileños parecen reconocer a los hongos como un grupo de organismos distinto, lo cual sugiere que hay una denominación de los hongos como un taxon de niveles superiores en estas sociedades tradicionales.

**Palabras clave:** Etnomicología, Brasil, micofilia, no-micofilia.

### ABSTRACT

The goal of this work was to carry out a revision of the ethnomycological studies in Brazil, dating from the 17th century until the present. We systematized information about species, indigenous glosses, uses and bibliographic references according to contemporary ethnobiological criteria (utilitarian or cognitive). In broad lines, there are two distinct periods, which correspond to the proper development of the discipline: the Utilitarian Period with scarce, descriptive and anecdotal works and the Cognitive Period with more systematically descriptive studies. The revision demonstrates that most indigenous groups studied in Brazil are non-mycophilic, corroborating that non-mycophilia may be a generalized pattern in tropical lowlands of Latin America. Brazilian Indian groups seem to recognized fungi as a distinct group of organisms, which suggests that fungi are named as higher rank taxon in these traditional societies.

**Key words:** Ethnomycology, Brazil, mycophilia, non-mycophilia, indigenous people.

### Introduction

Ethnobiology studies the complex series of relations between human societies (especially the traditional ones) and the organisms, which constitute their past and present natural environment (Berlin, 1992). The term Ethnomycology appeared in order to designate the study of relations between societies and a particular set of organisms, fungi, of which, macrofungi represent the main group of ethnic interest (Wasson & Wasson, 1957; Wasson *et al.*, 1980).

Mycophilic people are those, which demonstrate special interest towards fungi. Fungi are present in their diet, medicine and/or cultural activities

(religious ceremonies and curative practices). Mycophilia occurs in distinct human societies in different periods and world regions in an anachronistic and generalized fashion. This kind of positive interaction contrasts with a typically negative relationship between other people and the fungi in their environment. These people are named non-mycophilic when they do not present any special interest towards fungi and mycophobic when they demonstrate aversion towards them. The cultural phenomena and terms that explain these concepts were first named and defined by Wasson and Wasson (1957), two of the most important ethnomycologists in the recent history of this discipline.

The several existing Brazilian Indigenous communities represent an important field of

ethnomycological investigation due to the scarcity of knowledge in this area. The potential of this scientific area is enormous since Brazil is one of the countries with the greatest biological and cultural diversity in the world (Fearnside, 1996). This paper intends to retrieve and analyze most of the available secondary data about ethnomycology in Brazil, categorizing them according to their approach. Furthermore, it establishes some hypotheses for research with regards to the behavioral patterns observed and their relevance to the program of research on comparative ethnomycology in Latin America.

## Materials and methods

The present paper is a bibliographic review of Ethnomycology in Brazil. Published papers, books and dictionaries on Biological Taxonomy, Anthropology and Linguistics since 17<sup>th</sup> century until nowadays were analyzed. The selected works were classified according to their ethnobiological approach: (i) utilitarian, that is, how and in what ways human societies use nature or (ii) cognitivist, that is, how and in what ways human societies view nature (Berlin, 1992). All ethnomycological relevant data were systematized in order to present an image of the utilization of fungi by some Brazilian Indigenous communities. Moreover, we proposed some perspectives for future studies.

## Results and discussion

The study of Ethnomycology in Brazil is divided into two periods according to what was observed by Berlin (1992) for the history of the discipline Ethnobiology as a whole. The first period dates from the mid seventeenth century to 1965, and can be named the Utilitarian Period. It is characterized by the contribution of naturalists (mainly botanists) and anthropologists who developed generic studies in which they described the use of macrofungi by several Brazilian Indigenous tribes in distinct aspects of their lifestyle. These works provide information on the relation between Indian communities and fungi, as well as etymological, edible or medicinal categories of utilization. Although most works are restricted to simple comments, some present detailed ethnographic descriptions. All these utilitarian works did not focus on the relationships between indigenous people and fungi; they actually are non-systematic, sparse reports.

The data on medicinal use of fungi in those communities dates back to the middle of seventeenth century. Piso and MarcGrave (1648) pointed out that the category of fungi named *carapacu* by native Brazilians (Tupi-Guarani ethny) contained some poisonous species, especially those that grew on rotten wood and, once ingested, could provoke shivers, cold sweats, hiccups and urine retention. This data constitutes the first report on this field of knowledge. Martius (1844), Peckolt and Peckolt (1888) and Chernoviz (1890) reported the use of a red fungus ("urupê-piranga", probably the species *Pycnoporus sanguineus*) for hemoptysis by Tupi-Guarani tribes. Pardal (1937) presented some data about two species of fungi [*Polyporus coccineus* (= *Pycnoporus sanguineus*) and *Geaster saccatus* (= *Geastrum saccatum*)] utilized to treat hemorrhage and uterine disorders. Roquette-Pinto (1938) stated the occurrence of an endemic dermatomycosis amongst Nambikwara populations, "chimberê", which, according to Lacaz (1960), was caused by *Trichophyton concentricum*. Fidalgo (1965) cited that Margareth Mee, a famous botanist illustrator, reported that the "Erigpaktsa" utilized *Trametes cupreorosea* for "women's diseases" (menstrual disorders).

It has also been observed that fungi were present in the diet of some tribes. Piso and MarcGrave (1648) only cited that some species of fungi were edible without making any other comment. Spix and Martius (1823-1831) reported that "Mawé" women adopted a special diet when they were pregnant, which consisted of ants, "guaraná" seeds (*Paulinia cupania*, Sapindaceae) and mushrooms. Berkeley (1856) pointed out that two species of fungi were part of the diet of "Tucano" Indians, probably of the genus *Fistulina*. Roquette-Pinto (1917) reported the existence of some fungi (*Polyporus* sp.) next to a pile of beans in a tribe of "Nambikwara" Indians. Brade (1930), Sampaio (1944) and Maravalhas (1965) reported the use of *Polyporus sapurema* (= *Polyporus indigenus*) in the diet of several Brazilian Indian tribes, which was known as "Indian bread". Lévi-Strauss (1946) described the use of some boiled mushrooms in the diet of "Nambikwara". Banner (1957) cited the use of fungi in the diet of "Kayapó" Indians only in the absence of "better" sources of food.

The period of Cognitivist research begins in 1965 with the publication of Fidalgo's classical article (1965), in which the author performed an extensive

bibliographic review and state of the art as well as analyzed how the systematization of mycological knowledge occurred. This pioneer work served as a basis for all those papers that appeared afterward. Therefore, it inaugurates a new period of ethnomycological research focusing on cognitivist aspects such as ethnotaxonomy analysis, which was designated in this paper as Cognitivist Period.

Some important works of the Cognitivist Period included those of Prance (1972, 1973), Fidalgo and Prance (1976), Prance (1984), and Fidalgo and Poroca (1986). In all these works the authors recognized the Yanomami groups (Waiká, Sanama, Tototobi, Auaris) as mycophilic, with a significant use of fungi in their dietary habits, completely diverging from "Paumari" Indians (Prance 1977) and other Brazilian tribes studied since then, which were typically non-mycophilic.

Fidalgo and Hirata (1979) described the "Kayabi, Txicão and Txucarramãe" names and uses given to some Basidiomycota fungi and commented on "piraíp", an endemic blastomycosis of "Kayabi" Indians. In an eminently taxonomic work, Aguiar and Souza (1981) clarified the identity of the fungi known as "Amazonian Indian bread", proposing a new species *Polyporus indigenus* I. Araújo and M. A. Souza.

Analysis of data for both periods reveals the main ethnotaxonomic differences and similarities among distinct Brazilian Indian ethnies. In general terms, they had specific words in their languages (primary lexemes) to name ordinary macrofungi. Berkeley (1856) stated that "Tukanos" Indians, contrary to most of Amazonian tribes, designated the fungi as "dichthybaki". On the other hand, Montoya (1876) and Barbosa-Rodrigues (1905) reported that the different fungal ethnotaxa was named by the attachment of an adjective to a generic prefix that designated fungi as a group: the word "urupê" in "Tupi-guarani" language. However, according to Machado (1945, 1954) the "Karajá" Indians of Macro-Jê linguistic group named fungi from the suffix "do-rrô". Three of the studied Brazilian Indian people had a generic denomination for fungi (Paumari, Tukanos and Txucarramãe) while the others presented a system based on prefixes and suffixes that, when attached to specific adjectives indicated ethnotaxa. Contrary to what was currently known about categorization of higher rank taxa in traditional societies, e.g. animals and plants (Berlin, 1992), the fungi, in all Brazilian indigenous people

cited in this paper, are named.

Among Yanomami Indians (the only mycophilic group) the fungi/people relationship is much simpler than that of mycophilic Indians of Central America and Mexico (Martin del Campo, 1968; Martinez-Alfaro *et al.*, 1983; Mapes *et al.*, 1981; Mata, 1987; Mapes *et al.*, 2002) where the high complexity of the relationship with macrofungi is reflected in the mycolatry phenomena described by several authors (Ravicz, 1960; Miller, 1966; Lowy, 1974; Ott, 1978; Wasson *et al.*, 1980) and mushrooms symbolism (Lowy, 1968; 1972). All ethnomycological relevant data of both periods were systematized in Table 1, which correlates updated scientific taxa to ethnotaxa, use form and ethnies.

**Non-Mycophilic behavior and "Kayapó" Mythology: a hypothetical example.** Perhaps the "Kayapó's" myth of the origin of agriculture is part of a key to understand the possible non-mycophilic pattern among indigenous tribes of Brazil. Several parts of the myth are significant: *In the beginning the Earth was neither good nor plenty of food. There were no fish or other animals. Fire was unknown. There were no fruits or vegetables. The Indians used to eat decomposing palm flour, caterpillars and wood ears* (the griph is ours).

The myth establishes the historical use and importance of macrofungi (wood ears), before the origin of agriculture, when the "Kayapó" suffered from insufficient and low quality food. The myth clearly shows two distinct mythical periods. One, previous to the origin of agriculture, in which the macrofungi, decomposing palm flour, and caterpillars have a substantial role in the "Kayapó" subsistence, and another, posterior to agriculture, in which vegetables and animals substitute for those resources in the basic function of society reproduction. In this period (with the advent of agriculture) fire plays a fundamental role in the transformation of food and, consequently, in the origin of culture and society.

These two mythical periods establishes a cut in the diacrony of "Kayapó" world, which places the former "Kayapó" closer to nature than to culture. It is interesting that in the first period all macrofungi were consumed. This explanation could lead us to infer that the decline or halt of consumption of macrofungi and the reduced cultural importance of them could currently be results of "Kayapó" cosmovision, and the mythical place of fungi in that cosmovision. For the "Kayapó", consumption of fungi is something that belongs to an ancient mythical time, related to a pre-

cultural past in which animal and vegetable foodstuffs did not exist. Hence, it is possible that the myth provides the Kayapó with an ideological justification, for the absence or incidentality of a cultural practice (the consumption of macrofungi). To

corroborate this hypothesis, it must be verified whether this observation can be extended to other indigenous groups of the same linguistic realm and the same cultural and geographic area.

**Table 1 Ethnomycological data from Brazilian Indian groups**

Scientific taxa	Ethnotaxa	Use form	Ethny
<i>Auricularia fuscusuccinea</i> (Mont.) Henn.	<i>apco-pilao</i>	edible	Txicão
	<i>pidjo</i>	edible	Txucarramãe
<i>Collybia pseudocalopus</i> (Henn.) Singer	<i>nainamoamok</i>	edible	Yanomami
<i>Collybia subpruinosa</i> (Murr.) Dennis	<i>hlamilimamok</i>	edible	Yanomami
<i>Datronia daedaloides</i> (Berk.) Ryv.	<i>atapamo</i>	edible	Yanomami
<i>Echinochaete brachypora</i> (Mont.) Ryvarden	<i>adabamo</i>	edible	Yanomami
<i>Geastrum saccatum</i> Fr.	not indicated	medicinal	not precisely indicated
<i>Gloeoporus thelephoroides</i> (Hook.) Cunn.	<i>arezi</i>	edible	Nambiquara
	<i>acebi</i>	edible	Nambiquara
<i>Gymnopilus earlei</i> Murr.	<i>alamok</i>	edible	Yanomami
<i>Gymnopilus hispidellus</i> Murr.	<i>pidapidalhamo</i>	edible	Yanomami
<i>Hydnopolyporus palmatus</i> (Hook.) Fidalgo	<i>shikimoamoque</i>	edible	Yanomami
<i>Lactocollybia aequatorialis</i> Singer	<i>hamimamoamwai</i>	edible	Yanomami
<i>Lentinus crinitus</i> (L.) Fr.	<i>apco-taguo</i>	edible	Txicão
	<i>shiocoiniamo</i>	edible	Yanomami
<i>Lentinus cubensis</i> Berk. & M.A. Curtis	<i>nainaiamo</i>	edible	Yanomami
<i>Lentinus strigosus</i> (Schwein.) Fr.	<i>shiocoiniamo</i>	edible	Yanomami
<i>Lentinus velutinus</i> Fr.	<i>shiocoiniamo</i>	edible	Yanomami
<i>Leucocoprinus cheimoniceps</i> (Berk. & M. A. Curtis) Singer	<i>brokemamok</i>	edible	Yanomami
<i>Neolitoysbe byssiseda</i> (Rick) Sing.	<i>hodohkuk</i>	edible	Yanomami
<i>Pholiota bicolor</i> (Speg.) Singer	<i>inishiamo</i>	edible	Yanomami
<i>Pleurotus concavus</i> (Berk.) Sing.	<i>ploplolemoamo</i>	edible	Yanomami
<i>Polyporus alveolaris</i> (DC) Bondartsev & Singer	<i>hassamo</i>	edible	Yanomami
<i>Polyporus indigenus</i> I.J. Araújo & M.A. Souza	not indicated	edible	Amazonian tribes
	<i>waikassamo</i>	edible	Yanomami
	<i>shikimamok</i>	edible	Yanomami
<i>Polyporus tenuiculus</i> (Beauvais) Fr.	<i>alamokayay</i>	edible	Yanomami
	<i>atapaamo</i>	edible	Yanomami
	<i>adamasik</i>	edible	Yanomami
	<i>mafcomkuk</i>	edible	Yanomami
<i>Polyporus tricholoma</i> Mont.	<i>corobamo</i>	edible	Yanomami
	<i>urupê-piranga</i>	medicinal	Tupi-guarani
<i>Pycnoporus sanguineus</i> (L.) Murr.	<i>uepó-piren</i>	medicinal	Caiabi
	<i>pinhamak-câmeri</i>	edible	Txucarramãe
<i>Trametes cubensis</i> (Mont.)	<i>pinhamak-aca</i>	edible	Txucarramãe
<i>Trametes cupreorosea</i> (Berk.) Lloyd	not indicated	medicinal	Erigpaktsa
<i>Trametes ochracea</i> (Pers.) Gilb. & Ryvarden	<i>shikimoamo</i>	edible	Yanomami
<i>Trichaptum perrotetti</i> (Lév.) Ryvarden	<i>pidjo</i>	edible	Txicão



This, however, does not provide a complete explanation of the general pattern apparently observed. It does not explain why fungi are not used (even incidentally) in curative practices and rituals, or if there are species with medicinal and hallucinogenic potential and why these are not used in the geographic area included in this review.

As it was previously suggested, vascular plants in tropical areas, which represent the highest biodiversity in the world (Fearnside *et al.*, 1996) with an enormous potential as drugs (Medelsohn & Balick, 1995), substitute for the role that fungi have in temperate zones of Latin America (Mapes *et al.*, 2002).

## Conclusions

All the papers of the Cognitivist Period still presented a predominantly utilitarian (or economic) approach although they focused, in a secondary manner, on aspects of ethnotaxonomy, mainly correlating the indigenous nomenclature to scientific one, without, however, giving emphasis to perceptions and principles of differentiation, categorization, denomination, use and management of the mycological resources. It is necessary that further works should concern with not only studying utilitarian criteria but also prioritizing a cognitive approach or both, with historical, cultural and ecological bases in order to better understand the interaction between distinct Brazilian Indian ethnies and the mycological universe.

Until date, most of the studied Brazilian indigenous people are non-mycophilic. The non-mycophilia seems to be a general pattern in tropical lowlands in contrast to the mycophilia in highlands of Latin America (Mapes *et al.*, 2002). In order to obtain more evidence to this generalized pattern observed, further ethnomycological investigations are necessary. Simultaneously, it is fundamental to intensify the research on the cultural significance of fungi, the mythology and taboos, concepts and ideas about nature and the fungi among several indigenous groups in many regions of Brazil. Moreover, it is necessary to carry out biological and ecological studies about macrofungi and their potential as food, medicine etc.

Perhaps the most interesting pattern that emerged from this work is the fact that all cited Brazilian Indian groups, despite of being mycophilic or non-

mycophilic, seem to recognize fungi as a distinct group of organisms from plants and animals, which is in marked contrast to currently knowledge about higher rank categorization in traditional societies. This putative pattern, however, still deserves further investigations.

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## References

- Aguiar, I. de J. da S.A., M.A. Souza, 1981. *Polyporus indigenus* I. Araújo & M. A. Souza, nova espécie da Amazônia. **Acta Amazonia** 11: 449-455.
- Banner, H., 1957. Mitos dos índios Kayapó. **Rev. Antrop. São Paulo** 1: 37-66.
- Barbosa Rodrigues, J., 1905. *Mbaé Kaá Tapyiyetá Enoyndava*. Imp. Nac. Rio de Janeiro.
- Berkeley, N.J., 1856. Rio Negro Fungi. Decades of Fungi. LI-LIV. Hook. **J. Bot. London** 8: 129-144.
- Berlin, B., 1992. *Ethnobiological Classification: Principles of Categorization of Plants and Animals in Traditional Societies*. Princeton University Press, Princeton, New Jersey.
- Brade, A.C.A., 1930. Saporema. **Bol. Mus. Nac. Rio de Janeiro** 6: 303-305.
- Chernoviz, A., 1890. *Diccionario de medicina popular*. Rio de Janeiro.
- Fearnside, P., 1996. Brazil. In: Harcourt, J.A. Sayer (eds.), *The Conservation Atlas of Tropical Forests the Americas*. C.S. Simon & Schuster, New York.
- Fidalgo, O., 1965. Conhecimento micológico dos índios Brasileiros. **Rickia** 2: 1-10.
- Fidalgo, O., J.M. Hirata, 1979. Etnomicologia Caiabi, Txicão e Txucarramãe. **Rickia** 8: 1-5.
- Fidalgo, O., D.J.M. Pororoca, 1986. Etnomicologia brasileira. **Bol. Micológico** 3: 9-19.
- Fidalgo, O., G.T. Prance, 1976. The ethnomycology of the Sanama Indians. **Mycologia** 68: 201-210.
- Lacaz, C.S., 1960. *Manual de micologia médica*. 3a ed. Atheneu, São Paulo.
- Lévi-Strauss, C., 1946. *Handbook of South American Indians*. Bur. Amer. Ethno. Bull. Smithsonian Inst., Washington.
- Lowy, B., 1968. Un hongo de piedra pre-clásico de México Viejo, Guatemala. **Bol. Inf. Soc. Mex. Mic.** 2: 9-17.
- Lowy, B., 1972. Mushrooms symbolism in Maya codices. **Mycologia** 64: 816-821.
- Lowy, B., 1974. *Amanita muscaria* and the thunderbolt legend in Guatemala and Mexico. **Mycologia** 66: 188-191.
- Machado, O.X.B., 1945. Os Carajás. **Publ. Cons. Nac. Prot. Índios** 104: 1-128.

- Machado, O.X.B., 1954. Botânica: Plantas do Brasil Central. Contribuição ao conhecimento da flora do Brasil. **Publ. Cons. Nac. Prot. Índios** 103: 1-49.
- Mapes, C., G. Guzmán, J. Caballero, 1981. **Etnomicología purépecha. El conocimiento y usos de los hongos en la cuenca del Lago de Pátzcuaro, Michoacán.** Cuadernos de Etnobiología 2. S.E.P., Soc. Mex. Mic. Instituto de Biología, UNAM, México.
- Mapes, C., F.P. Bandeira, J. Caballero, A. Góes-Neto, 2002. Mycophobic or mycophilic? A comparative ethnobiological study between Amazonia and Mesoamerica. **Proceedings of the 7th International Congress of Ethnobiology** (in press).
- Maravalhas, N.O., 1965. "Pão de índio". **Ciência e Cultura** 17: 18-20.
- Martin del Campo, R., 1968. Contribución al conocimiento de la nomenclatura micológica Náhuatl. **Bol. Inf. Soc. Mex. Mic.** 2: 25-36.
- Martínez Alfaro, M.A., E. Pérez Silva, E. Aguirre Acosta, 1983. Etnomicología y exploraciones micológicas en la Sierra Norte de Puebla. **Bol. Soc. Mex. Mic.** 18: 51-64.
- Martius, K.F.P., 1844. **Ueber das Naturell, die Krankheiten, das Arzttum und die Heilmittel der Uru-berwohner Brasiliens.** München.
- Mendelsohn, R., M. Balick, 1995. The value of undiscovered pharmaceuticals in tropical forests. **Economic Botany** 49: 223-228.
- Miller, W.S., 1966. El Tonalamatl mixe y los hongos sagrados. In: I.N.A.H. **Suma antropológica en homenaje a Robert J. Weitlaner**, México, D.F., 317-327.
- Montoya, A.R., 1876. **Gramática y diccionario de la lengua Tupi-guarani.** Paris.
- Ott, J., 1978. Exordium: a brief history of hallucinogenic mushrooms. In: J. Ott, J. Bigwood (ed.), **Teonanacatl, Hallucinogenic Mushrooms of North America.** Madrona Publishers, Seattle, 5-26.
- Pardal, R., 1937. **Medicina aborigen americana.** Buenos Aires.
- Peckolt, T., J. Peckolt, 1888. **História das plantas medicinais e uteis do Brasil.** Buenos Aires.
- Piso, G., J. Marcgrave, 1648. **Historia naturalis brasiliae.** Lud. Elzevir, Amstelodemi.
- Prance, G.T., 1972. An ethnobotanical comparison of four tribes of Amazonian Indians. **Acta Amazonica** 2: 7-27.
- Prance, G.T., 1973. The mycological diet of the Yanomam Indians. **Mycologia** 65: 248-250.
- Prance, G.T., 1977. The ethnobotany of Paumari indians. **Economic Botany** 31: 129-139.
- Prance, G.T., 1984. The use of edible fungi by Amazonian indians. **Advances in Economic Botany** 1: 127-139.
- Ravicz, R., 1960. La mixteca en el estudio comparativo del hongo alucinante. **Anales INAH** 13: 73 - 92.
- Roquette Pinto, E., 1917. Rondônia. **Arch. Mus. Nac. Rio de Janeiro**, 20: 1-252.
- Roquette Pinto, E., 1938. **Rondônia. Brasiliana.** Nacional São Paulo: 1-39.
- Rosenvet, A.C., 1989. Resource management in Amazonian before the conquest: beyond ethnographic projection. In: D. A. Posey, W. Balée (eds.), **Resource management in Amazonian: indigenous and folk strategies.** **Advances in Economic Botany** 7: 31-67.
- Sampaio, A.J., 1944. Alimentação sertaneja e do interior da Amazônia: Onomástica da alimentação rural. **Brasiliana** 238: 1-41.
- Spix, J.B., K.F.P. Martius, 1823-1831. **Reise in Brasilien auf S.M. König Maximilian Joseph I von Bayern 1817-1820 unternommen.** München.
- Wasson, V.P., R.G. Wasson, 1957. **Mushrooms, Russia and History.** Pantheon Books, New York.
- Wasson, R.G., A. Hoffman, C.A.P. Ruck, 1980. **El camino a Eleusis. Una solución al enigma de los misterios.** Fondo de Cultura Económica, México.

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