Wild Mushrooms and Mushroom Cultivation Efforts in Ethiopia

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Mushroom consumption is a common practice among many ethnic groups of south and southwest Ethiopia. Rural people appreciate mushrooms more than urban dwellers. Moreover, older consumers value mushrooms more than the young. Thus, reliable information on traditional use of wild mushrooms in Ethiopia is obtained from rural senior citizens. On the other hand, mushrooms are not highly valued in the central highlands. There are only a few local names for the many hundreds of species of mushrooms found in the region. In Amharic, the terms *Enguday* and *Yejib tila* are used for mushrooms. *Yejib tila*, which literally means, "shadow of the hyena" is a negative term. This seems to be based on the belief that mushrooms appear in places where the animal's shadow appeared indicating that growth of mushrooms is somewhat mysterious.

In indigenous forests, edible mushrooms species of *Macrolepiota*, *Auricularia*, *Armillaria*, *Pholiota*, and *Coprinus* occur often in abundance. Several species of *Macrolepiota* and *Agaricus* are common in highland grazing areas. Mushrooms associated with termites, *Termitomyces spp*, are diverse and collected by all ethnic groups and are considered to have the best aroma and taste among edible mushrooms. Mushrooms found in exotic plantations such as pinus and cupressus remain unknown to the local people and are not collected for use. The most common poisonous mushroom is *Chlorophyllum molybidites*, a mushroom similar to other edible members of the Agaricacea (Ash, 1977) and is difficult for local people to distinguish from edible look-alikes.

It is apparent that wild mushroom consumption supplements the nutritional needs of local people. The time period in which wild mushrooms grow coincides with periods of grain scarcity where food grain constitutes the principal dietary source. It is often women who are responsible for gathering mushrooms, but children are also involved in the collection of small types such as *Termitomyces microcarpus*.

Based on a limited survey we made during the last several years, little traditional (indigenous) knowledge exits on utilization of mushrooms for medicinal purposes in Ethiopia. However, extensive use of *Laetiporus sufureus* for the purpose of easing child birth is commonly practiced in Kaffa region. The powder of the mushroom is kept in some village households. It was interesting to observe that edible and medicinal mushrooms are available in the local markets in Bonga and Assosa towns during the

rainy season. Studies on nutritional and medicinal values of wild mushrooms of Ethiopia is well underway (Zewdu et al, 2013)

The mushroom flora of Ethiopia is little known and not systematically documented so ethnomycological information is lacking. Both areas of study and research would benefit from collaboration with experts from abroad.

It is our experience, from the limited surveys we made, to note that local people do not believe that mushrooms can be cultivated. We found that local people are eager to know the method of growing mushrooms compared with cultivation of sorghum, maize and millet. It is their belief that mushrooms do not have seeds and thus cannot be cultivated yet they have accepted cultivated mushrooms for consumption.

Mushroom research and development is a relatively recent activity in Ethiopia. The main aims of the research are to develop appropriate methods of spawn making Abate 1998; Abate, 2006), evaluate suitability of agricultural residues (grass/cereal straw, cotton seed waste, coffee waste, corn cobs, saw dust, cattle/horse dung etc) for cultivation and to provide training courses for mushroom cultivation (Abate, 1998; Abate, 2010).

The bioconversion efficiency of a few important cultivated mushrooms (*Pleurotus ostreatus*, *Lentinula edodes*, *Agaricus bisporus*) on agricultural and agro-industrial residues native to Ethiopia were determined. The feasibility of growing mushrooms at ambient conditions and construction of simple and low cost mushroom growing houses made of local materials were demonstrated at local scientific workshops in the College of Natural Science, Addis Ababa University.

The training courses offered were initiated by non-government organizations with the aim of job creation for young people. Based on the outcomes of research and the skills developed through training of interested individuals, small-scale mushroom growing enterprises were established (Abate, 2010). In all cases, by using commonly available containers such as bamboo baskets, clay pots and wooden boxes enabled cost effective and simple methods of mushroom growing. A few commercial mushroom spawn suppliers also appeared with the objective to provide quality grain spawn.

Small-scale mushroom enterprises then were established and began to supply fresh edible mushrooms, particularly the oyster (*Pleurotus ostreatus*) mushroom to local markets. Though efforts on growing the button (*Agaricus bisporus*) and shiitake (*Lentinula edodes*), is underway, the success story is based on the oyster mushroom. This mushroom grows fast, grows on a variety of agricultural residues and tolerates a wider range of environmental conditions.

Low relative humidity during the long dry season is the most important problem facing growers using production houses without climate control. To reduce the negative effect and make the growing process more optimal during the dry season, it was found that

using traditional clay pots (fig 1) is a better option as clay pots keep the internal humidity higher and retains moisture of the substrate better (Abate, 1995).

Fig.1. Oyster mushroom produced on substrate contained in traditional clay pots.

Small-scale (lower investment) mushroom growing for the local market is steadily increasing but growers face several technical problems. Education and technical support are crucially needed to make the activity fruitful, profitable and sustainable.

It is anticipated that investment for large-scale production of mushrooms in Ethiopia and the development of the young mushroom industry can be a feasible and significant economic activity in Ethiopia.

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