

Project Update: January 2022

Summary

Due to the pandemic situation of Covid-19 the schedule of this project has been modified. During September 2020 a first mushroom cultivation workshop was held in Sindicato Agrario Santa Isabel (located in Bolivian Yungas) with the authorisation of the community and carried out with Maribel Ibarra Merida as co-trainer. In this workshop, six local women and one high school student were trained in mushroom cultivation.

From January 2020 to January 2022 we didn't conduct any fieldwork or meeting with park rangers because of restricted circulation as well as access to national parks and research infrastructure were compromised by the Bolivian sanitary restrictions.

We are still analysing some samples of mushrooms from Yungas and the corpus of ethnomycological information. We expect to conduct an extra fieldwork and hold a future meeting proposed as "diálogo de saberes" (knowledge dialogue) with local people to validate this ethnomycological information as a previous step to publication and distribution of didactic material on the subject. At the same time, local people of Sindicato Agrario Santa Isabel requested a second mushroom cultivation workshop, that we are organising.

Objectives of project

- Document the diversity of Agaricales fungi in Bolivian Yungas.
- Document the traditional knowledge on mushrooms in Santa Isabel, Bolivia.

Mushroom cultivation workshop

The workshop was carried out in the outsides of Carrasco National Park, in Sindicato Agrario Santa Isabel community, located in the Yungas of Bolivia. For this meeting, Maribel Ibarra (co-trainer) and myself previously requested the consent of the community leader, Mr Juvenal Rojas, and of each person who assist to the meeting.

In this event, six women and one high school student were trained. The purposes of this workshop were to bring to the local people an overview on mushroom cultivation and to invite them to consider the possibility of doing so in their homes, as an alternative to gathering fungi in the forest and an economic opportunity with "low-cost technology and local waste". For this, we spend a half of day and conducted a bilingual workshop (quechua-spanish) in the school of the community. During this time, we prepared jointly the substrate (figure 1), we sterilised it with two methods (pasteurisation and lime method) (figure 2), we invited women to share their recipes on local mushroom cuisine (figure 3), we mixed the sterilised substrate with the spawn (figure 4), previously weighing it (figure 5), and we prepared grow bags (figure 6) for each participant, who would incubate them at their homes, following some instructions that we shared to take care of the grow bags until mushrooms are growned.

We used a local mushroom and a commercial mushroom, *Pleurotus albidus* (Berk.) Pegler (figure 7) and *P. ostreatus* (Jacq.) P. Kumm., and share the methodology of mushroom production as a cooking recipe. We provided the didactic materials (pen,

pencils, notepads), a coffee break and the materials to grow mushrooms (substrate, spawn, and others) in each home.

The assistance of the meeting were a few people that we knew from previous interviews. Working with small group allow us to make better connections and exchange traditional culinary recipes of mushrooms among the women of the community. This interaction inspired us to create a mushroom cooking chapter in the future book that will be delivered to the community. As a consequence of this workshop, another people of the community and school teachers are requesting a new one with the intention of including this activity of growing edible mushrooms in their daily life and/or in the rural school programme. This was an exciting and inspiring experience.

Thus, in the next and extra field trip proposed for the project (in February and March 2022), we intend to share a second mushroom cultivation workshop and to link local people with a supplier of spawn at a fair price. Also, we expect to conduct some interviews, hold a meeting with people to validate and share the ethnomycological information already registered and made some punctual mushrooms collections.

Advances in species identification and ethnomycological data processing

We having publishing two articles already (Melgarejo-Estrada et al. 2020a, b) and we are waiting for the publication of the new article approval by the Revista Boliviana de Botánica (Melgarejo-Estrada et al. 2022). Also, there are possible new species of fungi that will be fully studied once we are able to solve some restrictions to move samples through country borders (Bolivia-Argentina).

We are working with the ethnomycological information of this area and with Quechua people of surrounding areas and writing a bilingual book which contains information about local uses local uses, ways of recognition for mushrooms and local recipes.

Problems and assistance needed

Due to sanitary dispositions, park rangers have not been involved in any activity yet. Difficulties to access inside national parks during the sanitary emergence by Covid-19 and to move samples through country borders (Bolivia-Argentina).

We don't have data about mushroom production since we couldn't be part of the mushroom harvest because of the strict sanitary restrictions. For this reason, we propose in the second mushroom cultivation workshop to complete that missing part.

Bibliography

Melgarejo-Estrada, E.; M. E. Suárez & B.E. Lechner. 2022. Nuevos registros de *Campanella aeruginea* (Marasmiaceae) y *Pholiota oblita* (Strophariaceae) para los Yungas de Bolivia. *Revista de la Sociedad Boliviana de Botánica*. In press.

Melgarejo-Estrada, E., D. Rocabado, M. E. Suárez, O. Maillard & B. E. Lechner. 2020a. Checklist of Bolivian Agaricales 2: species with white or pale spore print. *Mycotaxon* 135:333.

Melgarejo-Estrada, E., M. E. Suárez, & B. E. Lechner. 2020b. Nuevos registros de hongos Agaricales (Basidiomycota) para las Yungas bolivianas. *Darwiniana, Nueva Serie* 8(1):309-317.

Figures

All photographs were taken by Maribel Ibarra Merida, except for figures 4, 5 and 7, which were taken by Elizabeth Melgarejo-Estrada.



Figure 1: Elizabeth explanations on how to prepare the substrate (September, 2020)



Figure 2: Ms. Felicidad, Elsa and Elizabeth (from right to left) pasteurizing the substrate



Figure 3: Sharing some local recipes based on mushrooms while waiting for the substrate pasteurization to be finished.



Figure 4: Mixing the substrate with spawn (from left to right: Marcelina, Elsa, Maribel and Cristian)



Figure 5: Ms. Felicidad and Cristian (from right to left) weighing the spawn



Figure 6: Elsa, Cristian, Maribel Ibarra (co-trainer) and Marcelina with the grow bags ready to be incubated in their homes



Figure 7: *Pleurotus albidus*, wild edible mushroom growing in Santa Isabel