

## Project Update: January 2020

### Summary

In the second prospection which reported here, I started fieldwork in October 2019 in Bolivian Yungas in company of Mónica Cervantes and Andrés Coaguila (figure 1), undergraduate students and field assistants.

My field experience was increased teaching diversity collection and ethnomycological techniques to Mónica and Andrés. We were able to document of almost 100 specimens in the study area, of which nine are a new records from Bolivia and six candidates for new species for science. At the same time, the range of known local distribution for six species was expanded.

From the ethnomycological point of view, we document five wild mushrooms (*Auricularia auricula-judae*, *Suillus granulatus*, *Pleurotus* sp., *Favolus tenuiculus* and *Pycnoporus sanguineus*) of local interest and two uses category differentiated, edible (four) and medicinal (one) by the Quechua people.

Information about the people links with the Yungas forest was recorded in the interviews.

### Objectives

- To document the diversity of Agaricales fungi in Villa Tunari, Incachaca and Colomi (Bolivian Yungas).
- To document the traditional knowledge on mushrooms in a Quechua community (Santa Isabel, Bolivia).

### Fieldwork

Fieldwork was carried out in Carrasco National Park (figure 1), specifically in Villa Tunari (17° 44' 50 "W, 63 38 '23" S), Incachaca (17° 14 '18.5 "W, 65° 81' 30.2 " S) and Colomi (17° 11' 37 " W, 65° 51 '55' ' S), where fungi were collected, and in Santa Isabel community, Colomi, where the ethnomycological study was conducted, with the previous consent of the community leader, Mr. Juvenal Rojas.

Due to critical storms during field work in Incachaca, we were able to collect few specimens there. However, in the other regions, a great diversity of fungi was found (figures 2, 3). Almost 100 specimens of fungi were collected, which is more than we expected for the end of the dry season.

Similarly, we were able to carry out the ethnomycological study successfully. We collected information during two meetings at the local school (which was a request of the community leader and the school principal), where we explained our research interests to students of primary and high school (figure 4). Then, we interviewed 10 local adult people (figure 5) and with them we did walks in the forests, accompanied by several children who learned how to recognise useful mushrooms directly from them, the local experts. This was a starting point for children who live in the community to become local guides that show fungal diversity to tourists.

## 1. Advances in species identification and ethnomycological data processing

We already identified 17 fungi to the species level (figure 6): *Agrocybe perfecta*, *Auricularia auricula-judae*, *Campanella aeruginea*, *Cookenia speciosa*, *Entoloma cerussatum*, *Favolos tenuiculus*, *Gymnopilus echinulisporus*, *Gymnopilus hispidellus*, *Hygrocybe atosquamosa*, *Marasmius cecropiae*, *Marasmius haematocephalus*, *Mycena holoporphyr*a, *Oudemansiella canarii*, *Pholiota oblita*, *Pleurotus* sp., *Pycnoporus sanguineus* and *Suillus granulatus*. Of them, nine correspond to new records for the Bolivian Yungas and, additionally, the range of the known local distribution of six species was expanded (*Auricularia auricula-judae*, *Marasmius cecropiae*, *Marasmius haematocephalus*, *Oudemansiella canarii*, and *Pycnoporus sanguineus*). This information will be published during this year (Melgarejo et al. *in prep.*).

Besides, there are six candidates to new species for science: *Gerronema* sp nov., *Gymnopus* sp nov., *Hemimycena* sp nov. (figure 7), *Mycena* sp. nov., *Pluteus* sp nov. and *Resupinatus* sp nov.

Regarding ethnomycology, we identified two main categories of local use: edible and medicinal. The useful species already identified are (figure 8): *Auricularia auricula-judae*, *Suillus granulatus*, *Pleurotus* sp., *Favolos tenuiculus* and *Pycnoporus sanguineus*, one of them is a new species record for Bolivia and two species are mentioned for the first time for Bolivian ethnomycology.

Apart from that, we compiled six Quechua names (*Pily chaqi*, *Pily kanka*, *Tullu huallpa*, *K'allampa de pinu*, *Ningri-Ningri*, *Pok'a-Pok'a*) and two Spanish names ("orejitas" and "sombrillita"). Some species have more than one vernacular name. This vernacular names correspond with six species. Also, some narratives on the lords or "señores" of the forest and their connection with the Quechua people were registered and are being analysed and transcribed.

Finally, I would like to remark that the good predisposition of the school authorities and the children's interest on learning about fungi made me consider the possibility of creating mushroom culture capacities in the high school. In this case, they would be the providers of mycelium to the community and develop their school project in parallel. This will empower and make them independent of an external institution (as I proposed initially), and they would contribute to preserve the fungi in the forest.

## 2. Problems and assistance needed

In general, the project is progressing very well.

Due to political instability, park rangers have not accompanied me during this field work.

### Figures

All photographs were taken by Elizabeth Melgarejo-Estrada, except for figure 1, which was taken by Bernardina Estrada, and figure 3, 4 and 5, that were taken by Mónica Cervantes.



**Figure 1:** The fieldwork team (from left to right: Andrés Coaguila, Elizabeth Melgarejo-Estrada and Mónica Cervantes). (October, 2019). **Figure 2:** M. Cervantes processing fungi samples in the field.



**Figure 3:** E. Melgarejo-Estrada photographing an Agarical.



**Figure 4:** E. Melgarejo-Estrada holding a meeting at primary school (left) and high school (right).



**Figure 5:** E. Melgarejo-Estrada holding an interview with Ms. Marcelina Montaño. **Figure 6:** New record for Yungas: *Mycena holoporphyra* (Berk. & M.A. Curtis) Singer (from left to right: diagnosis; *M. holoporphyra* in the forest,).



**Figure 7:** A possible new species for science: *Hemymicena* spp. (from left to right: Microscopic features, *Hemymicena* spp. in the forest).



**Figure 8:** *Auricularia auricula-judae*, an edible species.