

Project Update: February 2019

A. Lurida is reported in danger of extinction status subject to protection by Mexico's legislation (NOM-059-SEMARNAT), its collection in wild areas is prohibited. The Ethnobotanical Garden of Oaxaca, is the only one with record of this species. The individuals collected from their area of origin and established in the garden have had atypical behaviour, since of 10 parent plants, only one has produced shoots. The acquired donation from the botanical garden was five genotypes of this species. The agaves were transported successfully to the Biotechnology of Arid Lands Laboratory to the University of Guadalajara (Mexico) for in vitro establishment. We appreciate to engineer César Chávez Rendón for his collaboration and support in the proportion of information and preparation of biological material.



Figure 1. Genotypes Obtención of *Agave lurida*. Left) Parent plant of *Agave Lurida* (6 años). Middle) Rhizomatous shoots. Right) Visit to Jardín Etnobotánico de Oaxaca. ©Lourdes Delgado-Aceves.

Obtaining *A. guiengola* (common name "silver maguey"), Ethnobotanical Garden Santo Domingo, Oaxaca.

A. guiengola specie is listed by the IUCN as vulnerable. Seeds were obtained formation from flower stalk of a type plant of the ethnobotanical garden, the material is being processed in the tissue culture laboratory.



Figure 2. Left) *Agave guiengola*. Right) flower stalk (3 meters height). ©Lourdes Delgado-Aceves

Workshop Santa Catarina Minas, Oaxaca

The first workshop was in the community called Santa Catarina Minas, the exhibition of topics as conservation and the alternatives that are offered for the propagation of *Agave* spp. it was widely accepted. Leaders of each "Palenque" (place they make the mezcal) attended with great interest and participation. Observations about degradation of wild agave populations, as well as the difficulty to finding a mature agave for extraction and production of mezcal were principal topics.

Until now, 24 "Palenques" have been registered without any regimen or norm for the extraction of the species from its natural habitat. Most of them obtain the wild agave from natural areas.

Increment mezcal demand requires them to produce more litres per year, therefore, they exploit their natural resources to economic family support. This practice is common in the community due to there are no more job opportunities.

In the forum about problems in agave, it had the participation of men and women. The perspectives generated were the donation of some plants for their *in vitro* establishment and their subsequent propagation. The result of the biological material generated will be delivered to the same community to be planted in the natural areas of origin and monitor the behavior of each species. In addition, the initiative of a tissue culture laboratory was generated with an initial investment of a "Palenque".



Figure 2. Santa Catarina Minas Workshop. Left) Forum with leaders and inhabitants of the region. Right) Production place mezcal "Palenque". ©Lourdes Delgado-Aceves.

Workshop Rio Seco, Zoquitlán

Rio Seco Community, is located at south of Oaxaca, the roads are difficult access to arrive this community. Population is estimated to 300 people. They are governed under rules originated by themselves. Among its traditional activities is the production of mezcal and wild fruit fermented beverages as "Pitaya". In the talk, they commented on the decrease in the number of agave plants in their region and that have been most remarkable in the last 20 years. In addition, they have seen that agaves take up to 15 years to grow para consider them appropriate for extraction of their natural habitat. In face of the concern for the environment, the practice of small orchards has been carried out from collected seeds. After their

growth, they plan to take them to the field for their maturity. However, they comment on the concern about the scarcity of some species that are no longer observed in the area.



Figure 4. Rio Seco Workshop. Top left) Inhabitants of the region. Top right) *A. karwinskii* mature fruits (common name "madre cuishe"). Bottom left) Collection of agave fruits from flower stalk. Bottom right) Orchard created by a community inhabitant. ©Lourdes Delgado-Aceves.