Characterization and comparison of manufacturing traces on ritual implements which were recovered in agrarian offerings from Formative Period caves in Morelos, Mexico.

**Objective**

- Supported by paleoethnobotany, experimental archeology, the Scanning Electron Microscope (SEM), and the implementation of a 3D scanner, we are looking to establish the origin of the raw material used to elaborate the implements, but also the probable places where the raw material was obtained as well as the manufacturing techniques and the amount of time invested in the elaboration process. All of this to open a new perspective for investigation on archaeological wood.

**ORIGIN OF RAW MATERIALS AND TECHNOLOGICAL ANALYSIS**

90% of the resources used in the manufacture of the wooden artifacts were allochthonous and come from the high areas of the state of Morelos, such as the Pine-Oak Forest.

**The objects and their study**

Different types of wooden artifacts found in the three caves as photographic register using a 3D scanner.

**Reproduction of archaeological artifacts and abrasion process working with**

- a) obsidian, b) flint and c) basalt instruments in order to obtain manufacturing traces.

**Characterization and comparison of manufacturing traces using:**

- a) stereoscopical microscope, b) 3D scanner.

**The results point towards an intensive use of pinewood as an essential part of the offerings. It is interesting to note that the closest coniferous woods or Pine-Oak Forest are located at an approximate distance of 40 km. This leads to the conclusion that in order to perform the rituals inside the venues, there was a definite concern to obtain allochthonous resources.**

**WHAT TO KNOW ABOUT**

- The caves are located northwest of the town of Ticumán - Morelos.
- Used during Formative Period as a ritual places (400 a.C. – 200 a.C.)
- The agrarian offerings located inside the caves were confirmed by more than 10,000 botanical elements.
- As part of these elements, more than 700 wooden artifacts were recovered.

**Acknowledgments**

- INAH
- UNAM
- CONACYT
- Dr. Alejandro Vélazquez (LANCIC – IP – UNAM)
- Dr. Adrián Velázquez (LANCIC – IP – UNAM)
- Dr. Alejandro Vélazquez (LANCIC – IP – UNAM)
- Dra. Emily McClung and Mtra. Cristina Alvarado Morita / INAH
- Mtra. Mónica Alvarado Morita / INAH
- Mtra. Adrián Velázquez / INAH
- Mtra. Emily McClung and Mtra. Cristina Alvarado Morita / INAH
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