ART BIO MATTERS

POSTER: Identifying Binders in Mexican Lacquerware: A Tri-Partite Approach

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The fat extracted from the insect Llaveia axin axin (called aje) native to Mesoamerican regions has been historically used in combination with chia oil as a binding medium in the production of lacquerware from the Mexican state of Michoacán. This is in contrast to lacquerware from the Mexican state of Guerrero, reportedly made only with chia oil. This knowledge is based on historical documents and artisanal practice, however, to date there has been no scientific methodology to concretely identify either aje fat or chia oil in lacquerware or other artforms. This project aims at definitively identifying these unique artistic materials and tracking their use in Mexican lacquerware from the 17th to 19th centuries. Our novel tri-partite approach combines proteomic, lipidomic, and genomic analyses to build biomolecular databases and develop methodologies for the identification of these species, and has provided evidence for the use of insect fat (from the suborder Sternorrhyncha) in objects from Michoacán. Once fully validated, our robust analytical methodology will be applied to additional lacquerware objects to track the regional artistic preference for the use of aje fat and chia oil, providing valuable information for attribution and conservation practices. Furthermore, our methods can be applied to identify whether traditional artistic materials such as chia oil were used as a binders in paintings post-European contact.

The significance of this research lies in its demonstration of the power of our tri-partite methodological platform to investigate understudied or even unknown biological materials used to create artworks from around the globe, enabling precise investigation of cultural heritage materials from often understudied cultures. By establishing a reliable protocol for aje fat and chia oil identification, the first outcome is the ability to correctly attribute Mexican lacquerware in collections where the objects may have become dissociated from its origin. The second outcome is to aid conservators to make informed decisions regarding the materials and methods used in conservation, ensuring the long-term preservation and integrity of these valuable artworks. Finally, this study contributes to the broader field of cultural heritage studies by expanding our understanding of historical material sourcing and the artistic practices prevalent during 17th to 19th-centuries Mexican lacquerware production.

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