

Palaeoproteomics of Andean Camelid Fibers

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Large numbers of Pre-Hispanic Andean textile specimens have been recovered during various excavations from Peruvian archaeological sites dating from the Mochica culture (CE 100-850) area in modern Peru. These textiles are both works-of art and also represent a unique biocultural archive with the potential to provide deep-time data regarding the social, cultural, ideological, and ecological history of the past Mochica society and the animals they interacted with. Understanding the cultural choices that governed the design and usage of textiles necessitates to document the nature of the animal fibers used.

Camelid fibers were used for the creation of the textiles, which can either derive from the domesticated llama (*Lama glama*) or alpaca (*Vicugna pacos*), or their wild ancestors, the vicuña (*Vicugna vicugna*) or guanaco (*Lama guanicoe*). Fiber morphology does not allow to differentiate between the four taxa and therefore limits assessments of past exploitation of South American camelids.

Palaeoproteomic analyses of keratin and keratin associated proteins (KAP), which are robust and potentially species specific proteins in animal fibers, can provide insight into the past exploitation of these four taxa and reconstruct the interaction between the Mochica culture and South American camelids. Although palaeoproteomic research on keratin and KAPs is not as well developed as similar research on collagen, some species-specific peptides for the four taxa have been identified.

Through palaeoproteomic analysis, using LC-MS/MS, on archaeological textile remains we answer cultural historical, zooarchaeological, and historical ecological questions as well as provide novel approaches relating to the rapidly evolving field of palaeoproteomics.