**From Molecules to Memories: Reconstructing Aromatic and Medicinal Practices in ancient Arabia Through Biomolecular Archaeology**

Barbara Huber, Max Planck Institute of Geoanthropology and University of Tübingen

The use of aromatic substances in antiquity extended far beyond their role as mere fragrances, encompassing medicinal, sanitary, cosmetic, and ritual functions that shaped daily life and cultural practices. In ancient Arabia, incense materials played a particularly central role, not only as valuable trade commodities but also as multifunctional substances used for purification, disinfection, and healing. This talk explores the intersection of aromatic and medicinal practices in ancient Arabia, emphasizing the critical role of biomolecular approaches in archaeology for uncovering these intertwined uses.

Traditional understandings of aromatic and medicinal practices have relied heavily on ancient texts. However, such sources are often absent for many periods and regions, including prehistoric Arabia. By employing biomolecular approaches to analyze preserved organic residues in archaeological artifacts, such as ceramic vessels and incense burners, we can directly identify compounds, such as secondary metabolites and lipids characteristic of plant-based incense materials. These findings illuminate how aromatic substances were used not only to enhance sensory experiences but also to protect health and purify spaces, particularly within ritual and daily life contexts.

In addition to presenting case studies of biomolecular analyses carried out at different archaeological sites in ancient Arabia, this talk highlights how olfactory storytelling and reconstructions can bridge the gap between scientific discovery and public engagement. These reconstructions not only offer audiences an immersive and sensory-rich connection to the past but also raise important questions about their re-creation and integration into museums, exhibitions, and publications. By critically examining these aspects, we can better understand both the potential and the limitations of using scent to reimagine ancient experiences.

\* \* \*

Barbara Huber is an archaeo-chemist specializing in the study of human-plant relationships throughout history, with a keen interest of how past societies made use of natural plant resources, especially aromatic, medicinal, and bioactive plants. She also focuses on uncovering the historical significance of scents and perfumes. Recognizing that smell has been largely overlooked by historians and archaeologists, she is working on innovative ways to decode ancient aromas.