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# Molecular Fingerprinting - Genomics, Proteomics and Metabolomics-based Artefact Profiling

*Friday 10 October 2025 12:00 (30 minutes)*

As part of the Cluster of Excellence "Understanding Written Artefacts", historical palm leaf manuscripts from South India (Puducherry, Tamil Nadu) are being examined, as they represent one of the world's most significant and numerous forms of handwritten artefacts. However, their material properties have hardly been systematically studied, if at all. The aim of this research is to gain insights into their production, geographical origin, use, and preservation, thereby contributing to a deeper understanding of written artefacts across cultures.

Genomics-, proteomics-, and metabolomics-based methods are used to obtain the most comprehensive chemical information possible about the manuscripts. These non-targeted approaches aim to create high-resolution chemical profiles, which are then compared using chemometric methods. In this way, differences and similarities can be identified, allowing conclusions to be drawn about the above-mentioned research questions. In addition to the ancient manuscripts, fresh and unprocessed palm leaves from various species are also analysed, allowing the results and approaches developed to be transferred to the historical samples.

The results open up new research perspectives in philology, codicology, and palaeography, thereby improving our understanding of material and textual cultures throughout Asia.

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