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## Proteic and molecular markers of parchments

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158

The identification of the animal source used to produce medieval parchments allows a better characterization of a manuscript and a scriptorium. This is commonly achieved by the analysis of the hair hole pattern [1]. Nevertheless, some of them are very similar and might have changed during the parchment production, or even become unreadable due to accumulation of dirt on the parchments surface.

Therefore, the aim of this work is the characterization of simulated parchments with different known origin, based on protein and DNA markers, for further animal sources identification in these historical assets. For this study, a set of contemporaneous parchments from calf, deer and sheep produced according to medieval procedures were analyzed in order to develop standard approaches.

The parchments were characterized by microscopy and non-destructive techniques (FTIR-ATR and micro-Raman) and, microsamples were collected in order to perform protein and DNA extraction processes. Results allowed to identify differences at structural level, based on hole patterns and molecular signs. Proteic and DNA profiles, obtained by Native-PAGE and M13-PCR, respectively, allowed to distinguish parchments with different animal origins. The application of these approaches, using proteic and molecular markers, seems to be a useful tool to complement the study and identification of the animal sources of historical parchments.

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[1] R. Larsen, "Improved damage assessment of parchment - IDAP: assessment, data collection and sharing of knowledge". Edition: Directorate-General for Research and Innovation, European Commission. 2007. ISBN: 978-92-79-05378-8.