

Archaeometric Analyses of Transylvanian Metal Artefacts. Case Study: The Scythian Necropolis of Sâncrai (Alba County)

Author **Gabriel Balteș**

1 Decembrie University of Alba Iulia , gabi_baltes@yahoo.com

Author **Mihai Gligor**

1 Decembrie University of Alba Iulia , mihai.gligor@uab.ro

Co-author **Ioana D. Dulamă**

Valahia University of Târgoviște , dulama_id@yahoo.com

Co-author **Cristiana Rădulescu**

Valahia University of Târgoviște , radulescucristiana@yahoo.com

Co-author **Sofia Teodorescu**

Valahia University of Târgoviște , sofiateodorescu@yahoo.com

Co-author **Raluca M. Știrbescu**

Valahia University of Târgoviște , stirbescu_nic@yahoo.com

Co-author **Ioan A. Bucurică**

Valahia University of Târgoviște , bucurica_alin@yahoo.com

Co-author **Sorina G. Stănescu**

Valahia University of Târgoviște , geaninastanescu@yahoo.com

Abstract:

The Scythian necropolis of Sâncrai (Alba County) was investigated in 2016, which led to the discovery of 95 burials (inhumation and cremation). The study of the tombs revealed a rich funerary inventory, composed mainly of ceramic vessels of different shapes and sizes; weapons such as akinakes daggers, spearheads, and arrowheads; ornaments including amber beads, kauri shells, kaolin, earrings, loop rings, saltaleoni type bracelets, and clothing appliqués; and harness elements, including horsehair and quiver appliqués. The purpose of this paper is to describe the archaeometric analyses of metal pieces recovered from this site.

A combination of non-invasive/micro-destructive analytical techniques (optical microscopy, scanning electron microscopy coupled with energy dispersive spectrometry, and Fourier-transform infrared spectroscopy), and statistical methods (cluster analysis, using SPSS Statistics) was used to obtain comprehensive information about the studied metal artefacts. In this respect, 16 metallic samples were investigated to establish the samples' defects as well as their elemental and molecular composition. Overall, the analytical and statistical analyses show us that the metallic samples can be split into three groups based on composition: iron, copper-tin/bronze, and gold-silver. In these groups, samples present a strong correlation, suggesting that they were created using similar minerals.

Keywords: *Iron age, Sâncrai Scythian necropolis, metal artefacts, grave goods, archaeometry, optical microscopy, SEM-EDS, ATR-FTIR*