

Compatibility of spectroscopic techniques in comparative measurements of historical Polish coins

A. M. Gójska, E. A. Miśta, K. Trela

¹National Centre for Nuclear Research, ul. A. Soltana 7, 05-400 Otwock, Poland

Aneta.Gojska@ncbj.gov.pl

The ED-XRF (energy-dispersive X-ray fluorescence) compact system was used to analyze selected Polish historical coins. The compact X-ray tube developed in the National Centre for Nuclear Research (NCBJ) was used as an X-ray source in the system designed for the ED-XRF studies. The XRF spectra were recorded with the Amptek SDD spectrometer. The elemental compositions of two historical Polish coins have been determined using above mentioned system and the results were compared to those obtained with WD-XRF method. Other techniques such as SEM-EDX and XRD were also included into this work for comparison. The experimental data show that the X-ray system with transmission type X-ray tube with silver anode operating at 50kV/30 μ A which was developed in NCBJ together with the Amptek SDD spectrometer is an effective tool for chemical composition analyze of historical coins and can be successfully used in archaeometry.

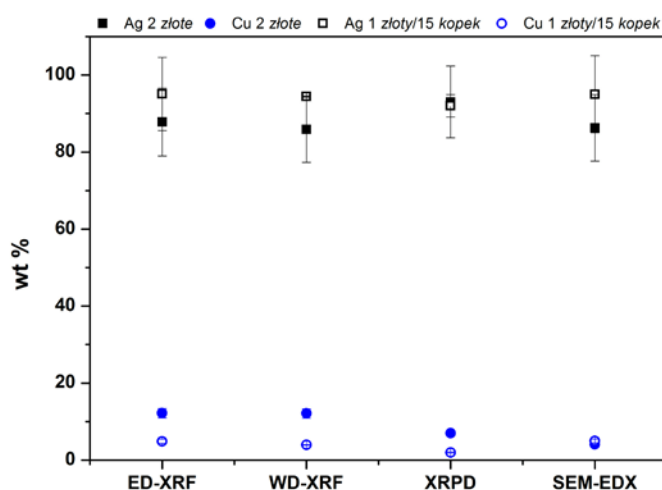


Figure 1. The comparison of the elemental composition of coins obtained by use of four spectroscopic methods: ED-XRF, WD-XRF, SEM-EDX, XRD.