

"Archaeometrical research of lithic raw materials for early Neolithic prehistoric communities with the help of Prompt Gamma Activation Analysis, with special regard to radiolarites and obsidian"

*Provenance study of obsidian stone tools with PGAA – new results*

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One of the main aims of archaeometry is the provenance study of various raw materials. Based on archaeometric investigations, information can be drawn regarding the interactions and movements of prehistoric communities. These studies have special importance in case of stone tools, because of two reasons. First, stone tools represent early periods with few material remains; second, during the historical periods, raw materials were only physically modified, their chemical compositions remained unchanged.

Obsidian (as well as radiolarite and Szeletian porphyry) is the major raw material of prehistoric tool production in the Carpathian Basin, thus it is the most frequent subject of archaeometric studies. Obsidian (a rhyolitic volcanic glass) has formed in the Northern Carpathians during the intensive volcanism in the Miocene Age. According to earlier studies, two main groups and further subgroups exist. The main categories are the transparent-translucent Carpathian 1 (C1 – Slovakian) and the non-transparent Carpathian 2 (C2 – Hungarian). The most recent studies discovered a third variant of Carpathian 3 (C3) on the area of present Ukraine. In our previous PGAA investigations, we have analysed archaeological pieces from Hungary and geological samples representative of C1 and C2 types.

We have analysed geological samples from the Mediterranean region (Melos, Lipari, Sardinia), from Armenia (Sevan) and from France (Auvregne), too, as comparative to Carpathians. Other pieces of macroscopically similar appearance were also measured. On the basis of PGAA, they turned out to be modern slag, which were previously identified as obsidian. In 2008-2009 we started to work on archaeological obsidians from Croatia and Bosnia-Herzegovina within the frame of a Croatian-Hungarian project. Our data base of obsidians' chemical composition is continuously expanding.

In our earlier studies we were able to differentiate between Carpathian (and even between C1 and C2) and Mediterranean obsidians, based on PGAA results. When we added the new analytical data to our library, we found that some of the Croatian obsidians are similar to Carpathians, while the others are similar to Mediterranean (Lipari) ones in composition.

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