

Role of Tectonics in Forming Specific Source of Carbon-Acid Water

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Source of carbon-acid water adjacent to the small town Varvarin (central Serbia) is, by the mechanism of forming, unique in Yugoslavia. It was discovered at the southern slopes of Juhor mt. Made of metamorphoses at the exit of the Kalenić river. By internal faults and fault of NE-SW and NW-SE, the riverbed of the Kalenić river cut, and mountain massif divided into tectonic blocks. Along the faults, high-mineralized water and CO₂ are circulating. At the seepage spring, water discharges by points into alluvial sediments, mixing with water of alluvial aquifer and transforming them into carbon-acid.

The dotted outlets of carbon-acid water are distinguished by the content of 317 to 540 mg/l CO₂, 0,01 to 0,14 mg/l Mn and the total mineralization of 890 to 893 mg/l, without any Fe traces. On the contrary, the waters of alluvial aquifer which outlets of carbon-acid water are mixed with contain 0,3 to 0,6 mg/l Fe, 0,2 to 0,3 mg/l Mn, 23,8 to 117 mg/l CO₂ and total mineralization of 608 to 724 mg/l.

Drilling of two shallow wells to the depth of 6m has determinate the quality of carbon-acid water. Meanwhile drilling of well to the depth of 300m in the metamorphic rocks on the fault trace over the alluvial plain, the water and gas (CO₂) have been erupted rhythmically. This water contains 935 mg/l CO₂, 125,9 mg/l Fe, 3,7 mg/l Mn, total mineralization of 5034 mg/l and others mycrocomponents.

Uniqueness of the source is in drastic change of ion balance and eliminating of enormous Fe and Mn content. That is not only consequence of waters mixing, but of chemical processes, probably caused by strong CO₂ exhalation at some points in alluvial gravels of the source.