

**CONTENT OF CHALCOPHILE ELEMENTS IN LAKE KALIMANCI SURFACE  
SEDIMENTS (REPUBLIC OF MACEDONIA)**

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In present study we examine the chalcophile element contents in Kalimanci Lake surface sediments (eastern Macedonia). The mineral composition of surficial lake sediments is dominated by quartz, plagioclases (albite, anorthite), phengite, clinocllore, K-feldspars, illite and muscovite. Lake Kalimanci occasionally also contains calcite, sphalerite, epidote, gypsum, clinopyroxenes, olivine and pyrite which in some cases contain As. Geochemical investigation revealed high concentrations of chalcophile elements in surficial lake sediments with average values [ $\text{mg kg}^{-1}$ ]: Ga 21.13, Cu 415.1, Pb 6059, Zn 8420, As 67.7, Cd 56.6, Sb 1.77, Bi 10.1 and Ag 5.58. Furthermore correlation analysis was applied among studied chalcophile elements and major elements. The results show high positive correlations ( $0.45 < r > 0.89$ ,  $0.01 < p > 0.00$ ) of Ca and Mg with all chalcophile elements. Meanwhile other major elements have lower negative correlations with chalcophile elements. Furthermore, enrichment factor (EF) was also calculated to explain the origin of studied chalcophile elements and their pollution intensity. EF mean values follows as listed: Ga 1.26, Cu 17.02, Pb 312.86, Zn 121.08, As 46.92, Cd 0.59, Sb 9.27, Bi 0.08 and Ag 0.12. Regarding to calculated EF it can be concluded that Cu, Pb, Zn and As have anthropogenic origin (from nearby active Pb-Zn mine), meanwhile others originate from the background rocks.