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PŮVODNÍ PRÁCE/ORIGINAL PAPER

## Supergénne minerály stratiformnej U-Cu mineralizácie pri Spišskej Teplici (hronikum, Kozie chrbty, východné Slovensko)

Supergene minerals of stratiform U-Cu mineralization at Spišská Teplica (Hronicum Unit, Kozie Chrbty Mts., eastern Slovakia)

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### Abstract

Occurrence of infiltration, stratiform U-Cu mineralization Spišská Teplica - Vápenica-Vysová is located approximately 7.8 km SW from the district town Poprad and 4.3 km SW from the centre of Spišská Teplica village (Slovak Republic). Primary U-Cu mineralization is bound to arkosic sandstones with abundant coalified fragments of higher plants (Kra-vany Beds, Upper Permian, Hronicum Unit) and consists of uraninite and pyrite. The chalcopyrite and Cu-S mineral phase (digenite?, roxbyite?) form inclusions in clastic fluorapatite and zircon. Among supergene minerals, malachite and goethite are absolutely dominant, azurite, zálesíite and baryte are less represented. Phosphate, probably of the florencite group, and acanthite were only rarely found. Supergene uranyl minerals were not detected. Their lack, or their weak development in all uranium deposits in Kozie Chrbty Mts. can be explained as follows: during the weathering of primary ores, the cation  $UO_2^{2+}$  is released from uraninite and coffinite into supergene solutions (uranyl complexes). However, these solutions come into almost immediate contact with fragments of coalified flora (especially in the case of rich U ores), where  $UO_2^{2+}$  binds to the organic uranyl complexes (complexation). Only a relatively small part of uranyl cation escapes from this geochemical trap, and in that case supergene uranium minerals may precipitate.

**Key words:** uranium, copper, malachite, azurite, zálesíite, uranium immobilization, Kozie Chrbty Mts., Western Carpathians

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