

Native silver associated with iron-copper rich mineralisation at the front of thrush zone in Chouichia region (NW of Tunisia)

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Location and setting

Mineral deposits at the front of the thrush zone at the NW of Tunisia are related to the geodynamic phases associated with the alpine and atlastic orogeny of North Africa [1, 2]. The iron-copper rich deposits in the Chouichia region, located at the SW part of the thrush zone, are the result of the several reworking phases of Fej Et Tamer ancient rooted major fault putting the upper Cretaceous limestone series into contact with metamorphic permo-triassic facies of El Hairech mountain.

Results and discussion

The mineralization is encased in fractures conjugated to the major fault of Fej Et Tamer and occurs in the form of lenses and vein clusters. The origin of metallic deposits are associated with the circulation of the hydrothermal fluids consecutive to the reactivation of the fractures conjugated to the major fault of Fej Et Tamer. Four phases of mineralization have been reported since Mankov S. [3] and Slim-Shimi N. [4] works. Geochemical rock data confirms that the main mineralization phases are characterized first by mineralizing fluids rich in Fe, Cu and incidentally As, and then by fluids rich in Fe, Cu, Sb, As, Bi and incidentally Pb, Zn, Hg and Ag with deposition of antimony sulfosalts and gray copper tetrahedrite-tennantite solid solution. This study shows that hydrothermal fluid flows are closed by an ultimate calcium-rich and relatively Ag-enriched fluids.

Electron microprobe analysis, confirm the presence of silver in the native state in a fully calcic gangue. This final phase of silver mineralization highlights the mineral resources of the region and reflects the role of Fej Et Tamer major fault in the metallic transfer.

[1] Rouvier H. (1977). [2] Zargouni F. (2010). [3] Mankov S. (1976). [4] Slim-Shimi N. (1992).