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Mechanism of Formation, Mineralogy and Geochemistry of Iron Mineralization in M'Taguinarou North Tebessa, Algeria

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Abstract : The M'Taguinarou North iron occurrence contains Iron and polymetallic mineralization (Fe-Zn-Cu), hosted in Turonian limestone. It manifests in metric clusters of goethite and hematite and in centimetre veins of smithsonite, malachite, and azurite. The genesis of this mineralization is clearly polyphased and results from the supergene processes superposed on hydrothermal phases where the Triassic diapirs probably generated the circulation of hydrothermal fluids through the sedimentary series, and the alteration of the Turonian limestone gave the formation of the hydrothermal primary ore composed of iron carbonates (siderite). Several uplift episodes affected the mineralization and the host rocks, generating the genesis of a polymetallic supergene assembly (goethite, malachite, azurite, quartz, and calcite). In M'taguinarou North, iron oxy-hydroxides are mainly observed in the form of fibrous stalactites, stalagmites, and Botroydale structures, where hematite precipitated first, followed immediately by goethite, limonite, and smithsonite. Siderite is completely absent. Subsequently, malachite, azurite, and calcite formed in the form of small veins intersecting the surrounding limestone.

Keywords : mineralization, genetic model, hydrothermal iron, supergene, Tebessa, Algeria
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