

Carbon isotope data of vein-type magnesite deposits of weathering origin.

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Based on the stable carbon isotope data, the source of carbon of vein-type magnesite deposits is attributed to either descending (supergene) or ascending (hypogene) CO₂-rich fluids. However, the magnesite deposits that have been reported to be of weathering origin are found to yield different $\delta^{13}\text{C}$ values, as is observed in the case of deposits in India (Doddakanya, Salem and Copper Mountain areas of Southern India) and Yugoslavia (Zlatibor and Goles areas). The Indian deposits, investigated by the authors, yielded $\delta^{13}\text{C}$ values between - 2 to -5 ‰ (PDB), whereas the reported $\delta^{13}\text{C}$ values of the above said Yugoslavian deposits cluster around -12 ‰ (PDB). The observed difference in the $\delta^{13}\text{C}$ values may be attributed to the difference in the ecosystem, dominated by different types of plants. Europe is characterized by C3 biomass ($\delta^{13}\text{C}$ = -25 ‰ PDB) throughout, whereas Asia witnessed the onset of an ecosystem dominated by C4 biomass ($\delta^{13}\text{C}$ = -11 ‰ PDB) c.7.0 Ma. ago. Since the soil carbonates are enriched in ¹³C by 14 to 17 ‰ in comparison with the local biomass, the $\delta^{13}\text{C}$ values obtained for the above Indian and Yugoslavian deposits are in conformity with the contemporary ecosystems dominated by C4 and C3 plants, respectively.