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Preliminary mineralogical data on the Magnesian Skarns from Sârca Valley, Budureasa Area, Romania

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The Sârca Valley skarns are located in the northern part of the Apuseni Mountains (Romania), in the Bihor Massif. The occurrence is known since the 1980's, when it was explored for a magnetite-bearing ore. It is located in the upper basin of the Sârca Valley, right affluent of Mare (Budureasa) Valley, about 2 km upstream from its confluence with Zăpozi Valley. From a geographical point of view, the skarn area is located approximately 20 km East of Beiuş, the major town in the area, and about 10 km East - South East from the village of Budureasa. The skarns from Sârca are developed at the contact between the Upper Cretaceous Budureasa laccolith, with granodiorite to quartz-monzodiorite differentiates, and the Anisian dolostones and dolomitic limestones of the Ferice Unit (Nappe). The skarns from Sârca Valley are a classical example of distal skarns, forming a metasomatic column with an inner zone containing diopside [a = 9.7316(8) Å, b = 8.8678(6) Å, c = 5.2786(4) Å, β = 105.9(5)°] + andradite [12.038000(6) Å], enveloped by a zone containing forsterite, chondrodite [a = 10.254(1) Å, b = 4.7284(6) Å, c = 7.8404(8) Å, β = 109.1(6)°] and spinel [a = 8.110898(5) Å] and an outer zone of periclase and brucite marble (only the prograde parageneses were cited). Iron mineralizations occur in the inner zones, containing essentially magnetite [a = 8.387807(4) Å], but also sulfides (pyrite, marcasite).

During this preliminary investigation, the microscopic observations in polarized light were supplemented by X-ray powder diffraction, SEM-EDS and Fourier-transform infrared spectrometry. Cell parameters of the main mineral phases were refined by least squares, on the basis of the X-ray powder patterns. The samples were collected from the mine heaps of Galleries II and IV Sârca Valley. The primary (prograde) parageneses mentioned before clearly undergone a late retromorphic, hydrometasomatic event which produced veins of tremolite [a = 9.8356(5) Å, b = 18.0561(4) Å, c = 5.2785(1) Å, β = 104.8(2)°] veins cross-cutting diopside and small masses and veins of phlogopite $2M1$ [a = 5.340(2) Å, b = 9.230(1) Å, c = 20.253(3) Å, β = 95.0(9)°] and phlogopite $1M$ [a = 5.304(3) Å, b = 9.200(3) Å, c = 10.209(3), Å β = 99.8(9)°] replacing spinel. Subsequent hydrothermal and weathering overprint on the metamorphic assemblages resulted in the formation of three secondary parageneses (1) an early hydrothermal one that includes chrysotile and lizardite in mesh textures with forsterite, chondrodite and lizardite nuclei, chlorite pseudomorph on spinel and talc + calcite pseudomorph after diopside, (2) a late hydrothermal one that principally includes brucite in onion-skin textures on periclase, and (3) a weathering paragenesis that principally includes dypingite pseudomorph after brucite [a = 3.147002(2) Å, c = 4.767999(4) Å]. This study reports the first occurrence of palygorskite and chondrodite in the Budureasa area.