

Hydrosaline melt inclusion provinces in Romania

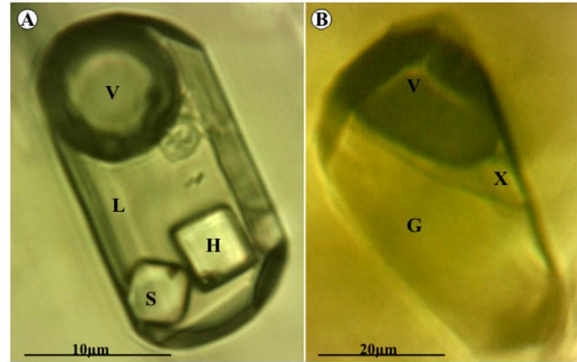
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The Alpine metallogenic provinces are the classic environments for hydrosaline melt inclusion from the Carpathians in Romania. P-T-X values from Neogene porphyry Cu-(Au)-(Mo) deposits in Metaliferi Mountains range between 320°-1426°C, 0.08-12.8kb, 39-89 wt% NaCl equiv., XNaCl= 0.17-0.64, considering heterogeneous trapping and post entrapment modifications. The Late Cretaceous porphyry Cu-(Mo)-(Au) deposits in Banat show lower values, with 150°-300°C, 20-30 wt% NaCl eq., and 1-3 kb pressure [1]. Hydrosaline melt inclusions occur in the Eastern Carpathians Miocene volcanic province, from SăpÂnța, Nistru, Dănești, Țibleş-Bran-Măgura Neagră, Toroioaga, Bărgău, Harghita Mountains and in the Late Cretaceous magmatic rocks from Bocșa and Vlădeasa, in veins and pegmatites. Skarns from Moldova Nouă and Oravița (in Banat), and Băișoara (in the North Apuseni Mountains), contain hydrosaline melt inclusions as well. Ditrău alkaline massif (Triassic) contains carbonic-rich hydrosaline melt inclusions in the ring zone associated with sulfide-REE mineralization and alkaline-hydrosaline melt/fluids in the central part, associated with porphyry Mo-(Nb) mineralization and skarns. Permian Highiș rhyolites and granites, with quartz veins and greisens, contain multiphase saline aqueous inclusions associated with sulfide and cassiterite. Upper Precambrian MVT - carbonate formation from Rodna-Gușet district includes isolated salt minerals and aggregates, and carbonic-hydrosaline fluid inclusions. Possible further targets for the hydrosaline melt inclusions are the pre-, and Variscan granitoids, the eclogites in the South Carpathians, the pegmatitic districts [2; Fig.1] and the Proterozoic and Caledonian sulfide deposits in the East Carpathians and Dobrogea. Hydrosaline solutions precipitated submarine halite in the Transylvanian basin and Subcarpathian zones during contemporaneous Plinian volcanic activity in Miocene.

References

[1] Pinteau I., Udubasa S.S., Iatan E.L., Berbeleac I., Birgaoanu D., Barbu O.C., Ghinescu E. (2019). Rom. J. Mineral Deposits, vol 92, 1-2, p. 9-32.

[2] Marza I. (1985) Genesis of the magmatic ore deposits, vol. 2 (in Romanian), Ed. Dacia.

Fig. 1. Hydrosaline melt inclusion (A) glass inclusion (B) in diopside from the Preluca pegmatitic district. V-vapor, L- liquid, H- halite, S- salt, G- glass, X- unknown.