

ORE MINERALISATION HOSTED BY VOLCANIC ROCKS OF THE SLÁNSKE VRCHY MTS., SLOVAKIA

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Volcanic rocks of the Slánske Vrchy Mts are related to the Neogene to Quaternary volcanic activity of the Carpatho-Pannonian region and belong to the basalt–andesite volcanism of island arc type. Volcanic activity is represented by andesite stratovolcanoes. Mineralisation is spatially related predominantly to the central zones of these stratovolcanoes. Historically, Au-Ag, Sb and Hg ore mining activity is well-known essentially from the Zlatá Baňa district.

LEXA et al. (1999) distinguished 15 main types of volcanogenic mineralisation based on geotectonic setting, type of magmatic activity, relationship to the subvolcanic magmatic-intrusive systems and on the primary character of the ore bearing fluids. Applying these criteria ore mineralisations of the Slánske Vrchy Mts. could be assorted to the following types:

1. Fe skarn mineralization. Found in drill holes in the Zlatá Baňa deposit.
2. Cu-Mo stockwork (porphyry?) mineralisation. Found in drill holes in the central zones of the Zlatá Baňa and Makovica stratovolcanoes.
3. Intrusion related base metal stockwork mineralisation. This is the most common type with economically interesting parameters, present at the Zlatá Baňa deposit and at occurrences, verified by drill holes in central zones of the following stratovolcanoes: Šŕavica, Makovica, Strechový vrch and Bogota. Mineralisation has stockwork (vein-veinlets) character and it is apparently of A–S (NW–SE) direction. The fillings of vein structures consist mainly of pyrite, sphalerite, galena, chalcopyrite and several other sulphide minerals. Au and Ag are characteristic and important components in the upper parts of the structures with base metal mineralisation. Stable isotope and thermobarogeochemic studies suggest that the cooling (from 300 to 150°C) and alkalization (from 3.5 to 7 pH) were the main ore forming factors, induced by the collapse of meteoric waters into the ore forming system.
4. Au-Ag + Sb low sulphidation epithermal, vein (vein-veinlets) mineralisation. It evolved predominantly in peripheral, lateral parts of the previous type of mineralisation. Stibnite is the main vein filling mineral. The proximate vicinity of veins are extensively pyritized and silicified. Au-Ag mineralisation is related just to this part of the structures.
5. Stockwork Hg mineralisation. This type of mineralisation is the most widespread in Slánske Vrchy Mts. The ore potential was checked at the locality Dubník (Červenica). Cinnabar is present in the space of the 3rd and 4th mineralisation types and forms numerous panning prospection anomalies in the whole mountains.

References

LEXA, J. (1999). in THOMPSON (ed.): Guidebook Field Conference, 65–108.