

## **HIGHLY EVOLVED GRANITES (ŠEJBY AND NAKOLICE STOCKS) IN THE NOVÉ HRADY Mts., MOLDAUBIAN BATHOLITH: GEOCHEMISTRY AND Rb-Sr DATING.**

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Two bodies of highly differentiated muscovite leucogranites described as Šejby type (KLEČKA & MATĚJKA, 1992, 1993; MATĚJKA & KLEČKA, in press) have been found in the Nové Hradý Mts., southern Bohemia. One body occurs about 5 km south of Nové Hradý, near of the Šejby village; the second one is exposed directly on the Czech-Austrian boundary about 4 km east-south-east of Nové Hradý, near of the Nakolice village. The Šejby-stock intruded an enclosed block of migmatic paragneisses at the contact of Weinsberg type and Eisgarn type granites. The apical part of an intrusive body with well-developed marginal pegmatites ("Stockscheider") seems to be preserved here. Pegmatoid schlierengranites (locally with biotite) are typical for this body. On the contrary, the Nakolice-stock penetrating porphyric muscovite-biotite Eisgarn type granite (Číměř variety) is formed by very homogenous medium-grained (locally coarse-grained) muscovite granite. Compared with the Šejby-stock, a deeper part of the body is exposed here.

Up to 10 mm grains of Nb-Ta oxides (ferrocolumbite to ferrotapiolite; NOVÁK et al., 1994) representing the primary magmatic phases have been found in the pegmatoid Šejby-granite. A significant heavy mineral anomaly of cassiterite and Nb-Ta-minerals is connected with this body. A similar but lesser one occurs also in the surroundings of the Nakolice-stock. Mineral composition of both granites is almost the same and main differences are in their textures (see above). Modal composition is following: quartz 30 - 40 %, albite 25 - 40 %, K-feldspar 10 - 25 %, muscovite 7 - 15 %. Biotite, chlorite, apatite, cassiterite, Nb-Ta-oxides, ilmenite, topaz and rare zircon are the main accessories. Basic geochemical features of both bodies are also similar: high contents of SiO<sub>2</sub> (72 - 76 wt.%), Al<sub>2</sub>O<sub>3</sub> (14 - 16 wt.%), P<sub>2</sub>O<sub>5</sub> (0.3 - 0.8 wt.%) and Na<sub>2</sub>O (3.7 - 5.5 wt.%) generally prevailing over K<sub>2</sub>O (2.9 - 5.1 wt.%), low contents of CaO (0.3 - 0.8 wt.%) and MgO (<0.05 wt.%), high Rb (550 - 990 ppm), Nb (38 - 54 ppm), Sn (15 - 30 ppm) and Ta (5 - 15 ppm), on the contrary, the low contents of Sr (<5 - 50 ppm), Ba (<50 ppm) and Zr (<5 - 37 ppm) as well as the sum of REE (18 - 45 ppm). Flat REE distribution patterns (Ce<sub>N</sub>/Yb<sub>N</sub> = 0.5 - 2.4) exhibiting strong negative Eu-anomalies (Eu/Eu\* = 0.01 - 0.045) are also typical.

A study of Rb-Sr isotopic system of muscovite granites gives the following results:

- a.) Rb-Sr whole rock isochron of 4 samples (30 - 50 kg) from Nakolice granite stock yields an age of 296 ± 31 Ma and a corresponding <sup>87</sup>Sr/<sup>86</sup>Sr initial ratio of 0.743138 ± 0.00029 (Fig. 1).

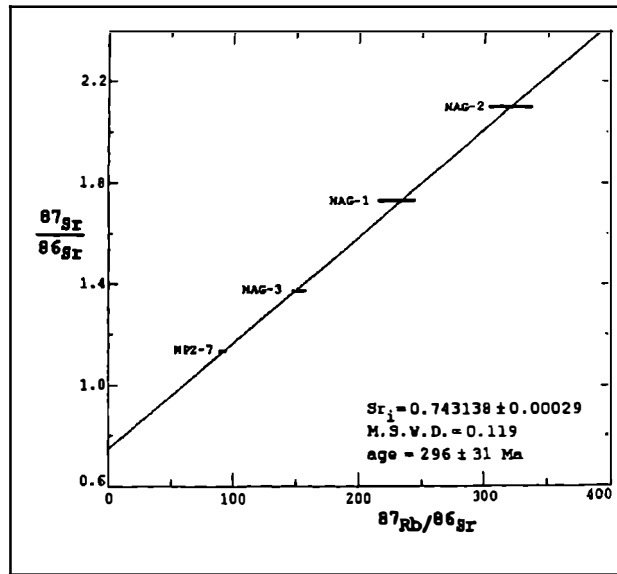


Fig. 1: Rb-Sr-isochrone plot for the Nakolice granite stock.

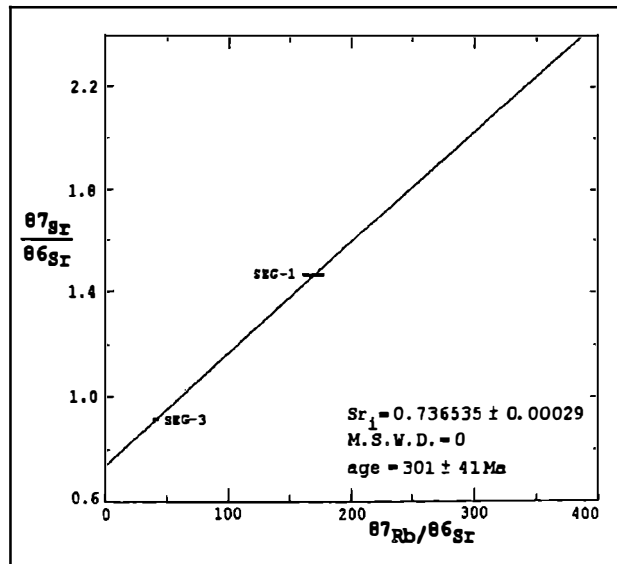


Fig. 2: Rb-Sr-isochrone plot for the Šejby granite stock.

- b.) preliminary Rb-Sr whole rock isochron of 2 samples (30 - 50 kg) from Šejby granite stock yields an age of  $301 \pm 41$  Ma and a corresponding  $^{87}\text{Sr}/^{86}\text{Sr}$  initial ratio  $0.736535 \pm 0.00029$  (Fig. 2).

The stocks of the muscovite leucogranites (Šejby and Nakolice bodies) as well as an extremely differentiated granite of Homolka type (about 300 Ma - BENDL et al., 1994) and acid dyke subvolcanites (295 Ma - KLEČKA et al., 1994) represent the youngest (final) magmatic products in the Moldanubian core of the Bohemian Massif.

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- NOVÁK, M., KLEČKA, M., ŠREIN, V. (1994): Compositional evolution of Nb, Ta-oxide minerals from alkali-feldspar muscovite granites Homolka and Šejby, Southern Bohemia, and its comparison with other rare-element granites. - Mitt. Österr. Miner. Ges., **139**, 353 - 354.

#### **Rb-Sr DATING OF THE TOPAZ-BEARING MUSCOVITE GRANITE STOCK HOMOLKA, MOLDANUBIAN BATHOLITH**

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The stock of an extremely differentiated topaz-bearing muscovite alkali-feldspar granite of "Homolka type" with Sn-(Nb-Ta) mineralization is located 5 km W of Nová Bystřice, close to the Austrian boundary (KLEČKA & ŠREIN, 1992; KLEČKA et al., in print). It has roughly an oval shape elongated in N-S direction and a surface area of 6 km<sup>2</sup>. The body intruded generally along a contact of two earlier intrusive granitic phases - the Lásenice and Eisgarn (Číměř variety) types. The Homolka granite stock is spatially and also genetically linked with subvolcanic acid dykes that constitute a N-S trending "volcanotectonic zone Želiv - Lásenice", about 85 km long (KLEČKA & VAŇKOVÁ 1988; KLEČKA, 1992; KLEČKA et al., 1994). Petrographically, the body is relatively homogenous; medium- to coarse-grained types predominate. Marginal pegmatites are locally developed in the northern and southern endocontact zone. Relatively abundant granite porphyries are found in the southern part of the stock. The body is penetrated by 0.1 to 0.5 m thick dykes of aplite and pegmatite.