Silica–rich felsitic dikes from southeastern part of the Bohemian Massif

Felzitické žíly bohaté SiO_2 z jv. části Českého masívu (Czech summary)

(6 text–figs)

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Scarce dikes of Hercynian silica–rich felsitic microgranites and granite porphyries occur in eastern and southeastern parts of the Central Bohemian Pluton, in southern part of the Českomoravská vrchovina highland and in the adjacent Waldviertel in Austria. They are associated with long regional faults. In spite of their vast distribution across a large territory they are mineralogically and chemically uniform. Chemically, they represent acid magmas corresponding to the thermal minimum of the haplogranite system. They are extremely low in CaO and femic components, and mostly enriched in fluorine. They approach topaz rhyolites not only chemically but also through their links to greisen–like assemblages. The dikes are occasionally affected by greisenization and display spatial relations to plugs and dikes of young, partly greisenized, granites. According to their trace element characteristics, they may be classified as syn–collision granitic magmas.

Introduction and geology

A specific type of felsitic dikes occurs in southeastern part of the Bohemian Massif, differing from all other acid dikes of the region by their striking leucocracy. They are known from central and southern parts of the Bohemian–Moravian Highland (Českomoravská vrchovina), from adjacent Austria and from eastern and southeastern parts of the Central Bohemian Pluton. In spite of their occurrence in a large area they are strikingly uniform. Their descriptions are given in many papers (Ginejko–Savicka 1928, Kodym – Suk 1959, Němec 1970, 1972, Žežulková 1982, 1989, Žežulková et al. 1977, Novák 1982, Klečka 1984, 1992, Klečka – Vaňková 1988, Vrána 1990). Hence, their common characterization is desirable.

The felsitic dikes are scarcely scattered in identical tectonic setting in the following areas (numbering of the areas is identical to Fig. 1): Surroundings of the Příčovy village (west of the Sedlčany town) in the central Bohemian Pluton (1). Surroundings of the Milevsko town (2). They are there mostly confined to the granite of the Čertovo břemeno type. Area between the towns Pelhřimov and Počátky (3). Area north of the Raabs town in Austria (4). Area around the Kozí hora hill (5, SW of the Staré Město village, in the Central Massif of the Bohemian–Bohemian Highland). Surroundings of the Albeř and Klášter villages (6, east of the Nová Bystřice town). Surroundings of the Lásenice village (7, south of the Jindřichův Hradec town); the dike at the Sedlo village lies a bit away from other dikes, belonging probably also to the dike swarm of Lásenice. Area between the Sušice and Nalžovské Hory towns, at SW margin of the Central Bohemian Pluton (this area lies outside Fig.1).

In general, the dikes are scarce. In some areas one dike (Raabs) or two dikes (Příčovy) occur. Only around Lásenice they are numerous. In some areas (Pelhřimov, Sušice), they are the only dike type present, no other dike type occurring there. They are associated with long straight regional faults. In the south and west, they mostly run approximately N–S, at Příčovy, however, their strike is WSW–ENE (Fig. 1). Their lenghts are often considerable: 2.5 km at Příčovy, 2 km at Lásenice, 4 km at Milevsko, 4 km at Sušice, 5 km at Raabs. The fissures filled by them evidently originated in an extensional tectonic strength field, as the dikes are often thick: up to 15 and 20 m at Raabs and Lásenice, respectively.

Petrographically, the felsitic dikes mostly differ markedly from all other dikes of the region and are not linked with them by any transitions. However, north of Raabs, the felsitic rock and a more basic rock fill together the same fissure showing limited interactions along the contacts (Němec 1972), and some transitions cannot be excluded in the dike belt near Nová Bystřice, where, in terrane, pieces of a felsitic rock and of granodiorite and diorite porphyries