LATE TOURMALINES AND THEIR UNUSUAL COMPOSITIONAL TRENDS IN GRANITIC PEGMATITES FROM THE BOHEMIAN MASSIF, CZECH REPUBLIC

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The tourmaline-group minerals are useful geochemical indicators due to their refractory behaviour and chemical structure which can incorporate a lot of elements. We compared late tourmalines from three different types of granitic pegmatites in the Moldanubian Zone, Bohemian Massif. The first sample comes from NYF euxenite-type pegmatite Kožichovice III penetrating amphibole-biotite syenite of the Třebíč Pluton. The black core (schorl-dravite) with small dark blue rim (dravite) < 1 mm thick locally intergrowths with non-perthitic Kfs and Qtz. Chemical compositions of the rim with Al_{tot} 6.09–6.24 *apfu*, Mg 1.85–1.93 *apfu*, Fe_{tot} 0.69–0.80 *apfu* is Mg-Al enriched with $Fe_{tot}/(Fe_{tot} + Mg) \leq 0.30$ relative to the core with Al_{tot} 5.19–5.88 *apfu*, Mg 1.33–2.09 *apfu*, Fe_{tot} 0.90–1.60 *apfu* (Fig. 1). In desilicated LCT pegmatite near Dolni Bory situated on contact serpentinite and migmatic gneiss early black schorl with Al_{tot} 5.13–5.69 *apfu*, Mg 0.44–1.23 *apfu*, Fe_{tot} 1.99–2.67 *apfu* is overgrown by late fibrous dravite (enclosed in opal-CT) with Al_{tot} 6.07–6.37 *apfu*, Mg 1.45–1.62 *apfu*, Fe_{tot} 0.97–1.26 *apfu* (Fig. 1) and $F_{tot}/(Fe_{tot} + Mg) \leq 0.46$. The last examined sample was discovered in contaminated LCT elbaite-subtype pegmatite Bližná I, South Bohemia enclosed in dolomite-calcite marble. Late aggregate to fibrous blue dravite with Na 0.49–0.61 *apfu*, Ca 0.04–0.13 *apfu*, Mg 1.97–2.22 *apfu*, Fe_{tot} 0.20–0.34 *apfu*, Al_{tot} 6.15–6.36 *apfu* and $Fe_{tot}/(Fe_{tot} + Mg) \leq 0.15$ grows on olive green to brown aggregate of liddicoatite-elbaite with Na 0.16–0.71 *apfu*, Ca 0.23–0.79 *apfu*, Mg≤ 0.76 *apfu*, $Fe_{tot} \leq$ 0.39 *apfu*, Al_{tot} 6.67–7.82 *apfu* (Fig. 1). These late tourmalines show similar compositions with moderate Al_{tot} (6.07–6.37 *apfu*) mostly low Ca (0.04–0.13 *apfu*), quite variable X-site vacancy (0.04–0.47 *apfu*) very low Ti (≤ 0.05 *apfu*), low F (≤ 0.17 *apfu*) and high activity of Mg (1.45–2.22 *apfu*).

Textural relations and chemical composition indicate change of crystallization conditions (decrease in temperature, transition of parental medium from melt to hydrothermal fluid, opening of the system to host rocks) during tourmaline evolution. Such dravitic composition (Fig. 1) might be stable in low-T conditions similar to authigenic tourmaline originated during diagenetic processes (e.g., SPERLICH *et al.,* 1996; AUBRECHT & KRIŠTÍN, 1995).

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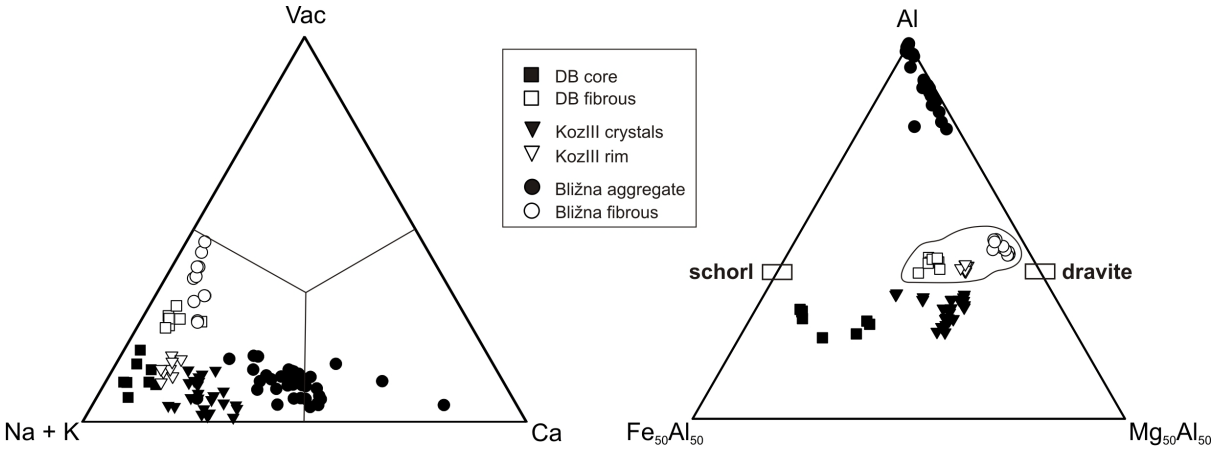

Fig. 1. *Chemical compositions of early to late tourmalines from three distinct localities in the Moldanubian Zone, Bohemian Massif, Czech Republic.*