

MINERALOGICAL CHARACTERISATION OF THE META-MORPHIC ROCKS FROM ȚICĂU HILL (NW TRANSYLVANIA, ROMANIA) AND THEIR CONTRIBUTION TO A RECONSTRUCTION OF THE REGIONAL METAMORPHIC EVOLUTION

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The Țicău Massif appears like a crystalline island in the northwest of the Transylvanian Basin, surrounded by Tertiary sedimentary formations. From the tectonical point of view, most of the authors assign this massif to the northern structures of the Apuseni Mountains. From the petrographical point of view it is formed of metamorphic rocks belonging to the amphibolite facies: plagioclase bearing gneisses, mica schists, K-feldspar bearing gneisses, quartzites, amphibolites.

For the mineralogical characterisation microscopical observations on oriented thin sections and microprobe electron analyses were made. Thus, four mineral assemblages could be observed: (1) qtz + pl + ms + bt ± grt, chl, kfs, ep; (2) qtz + ms + bt + grt ± chl, cld, pl; (3) qtz + pl + kfs + ms + bt ± chl, grt; (4) qtz + pl + amph + bt ± chl, grt.

Quartz – the most common mineral, it is present in all these four assemblages.

Plagioclase – anorthite content between 25–30 %, typical for the oligoclase species.

K-feldspar – microcline is the principal K-feldspar of the third assemblage.

Muscovite – the chemical analysis shows the following: $\text{Ms}_{62-70}\text{Pg}_{11-23}\text{Ce}_{7-17}\text{Mrg}_{0-2}\text{Pr}_{10-6}\text{PhlAnn}_{0-4}\text{Ti-Ms}_{1-5}$.

Biotite – can be attributed to the phlogopite–annite series with the following end member composition: $\text{PhlAnn}_{36-64}\text{EasSid}_{6-34}\text{Won}_{6-13}\text{Ti-Bt}_{8-15}\text{TlcMin}_{1-13}\text{Ms}_{0-10}$.

Chlorite – belongs to the clinochlore–chamosite group (BAILEY, 1991).

Garnet – the microprobe analyses show the garnet close to the almandine species, having the following composition: $\text{Alm}_{63-82}\text{Prp}_{6-12}\text{Sps}_{0-4}\text{Grs}_{4-21}\text{Adr}_{2-5}$ (DENUT & FLAUT, 1999).

Amphibole – we can point out the presence of two mineral species belonging to calcium amphibole group (LEAKE *et al.*, 1997): pargasite and magnesiohornblende.

On the basis of microscopic observations combined with microprobe chemical analyses, three regional metamorphic events of medium p/T type were pointed out (after MIYASHIRO, 1994): M1 – *transient facies, garnet zone*; M2 – *amphibolite facies, staurolite zone*; M3 – *greenschist facies, chlorite zone*.

References

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