

## **COMPOSITION OF BIOTITE IN GRANITOIDS FROM THE PAPUK AND PSUNJ POLYMETAMORPHIC COMPLEXES IN EAST SLAVONIA, CROATIA**

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Biotites from granitoid rocks of the Papuk and Psunj Polymetamorphic Complexes in East Slavonia (Croatia) were examined by optical and microprobe methods. The aim of the investigations was to determine the type(s) of magma by means of chemical composition of biotites.

Biotite is the main mafic mineral. It shows strong pleochroism from reddish brown to yellowish brown or yellow. Reddish colour is the result of TiO<sub>2</sub> content. Biotite very often contains zircons with pleochroic halo. Besides zircon, epidote and acicular rutile occur as frequent inclusions.

The composition of biotites was analysed in six rock samples: two granodiorites, three monzogranites and one syenogranite. The samples were measured with EDAX and with WDS. Calculation of formulae was based on 22 oxygens. Six major chemical components (SiO<sub>2</sub>, TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, FeO, MnO and MgO) were taken into consideration.

The Mg-rich biotite (FeO\*/MgO = 2.0) in granodiorite (Papuk polymetamorphic complex) plots in the central part of the phlogopite-eastonite-siderophyllite-annite compositional diagram and indicates a calc-alkaline character of rock which probably crystallized from a mixed melt (basic, acidic).

The Fe and Al rich biotites (FeO\*/MgO ratio varies between 2.81–3.65) are showing peraluminous character (ABDEL-FATTAH, 1994). They occur in S-type granites. These biotites coexist with muscovite, have SiO<sub>2</sub> content between 34.68 wt% and 35.54 wt%, Al<sub>2</sub>O<sub>3</sub> from 17.01 wt% to 18.63 wt% and contain high FeO (21.71 wt%–23.61 wt%) and low MgO (6.31 wt%–7.71 wt%). These rocks originated most probably from partially melted continental crust.

### References

ABDEL-FATTAH M. ABDEL-RAHMAN (1994). *J. Petrology*, 35: 525–541.