



Comparative petrology, geochemistry, Sr and Nd isotope characteristics and mineral chemistry of the Late Cretaceous magmatic rocks in the northern part of the Panagyurishte ore region, Srednogorie magmatic zone, Bulgaria

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The investigated Upper Cretaceous magmatic rocks are located in the region of the Chelopech Au-Cu epithermal deposit, the Zlatitsa pass and the Elatsite Cu-Au porphyry deposit. These magmatic products are of predominately East-west development. They are mainly of andesitic, latitic and trachydacitic chemistry. They are of Turonian age according to radiogeochronological investigations of the dykes in the Elatzite deposit and the volcanics in the region of the Chelopech deposit. These magmatic rocks show similar petrographical, geochemical and isotopic composition and mineral chemistry. The main phenocrysts in the dykes and volcanics are represented by plagioclase and amphibole, rarely by quartz and biotite. The ground mass is microlitic. The trace element composition of these magmatic rocks is similar to those typical for the active continental margins (Andean type). Sr and Nd isotopic compositions suggest a mixed mantle and crustal source of the Turonian magma. The chondrite-normalized REE-patterns are generally very similar, suggesting common genetic relationship. All patterns resemble closely those of the typical island-arc magmas. They do not show negative Eu-anomalies. The MORB normalized patterns of the major and some trace elements of the magmatic products of the zone show enrichment on LILE and low ratio of HFSE (Ce, Zr, P and Hf) and strong Nb anomaly. These features are typical for subduction-generated magmas.