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# Geology, mineralogy, geochemistry and genesis of the Kavşit (Çine-Aydın) albitite deposits in the Menderes Massif, Western Anatolia, Turkey

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The most important feldspar (albite) deposits of Turkey occurred in the southern part of the Menderes Massif in the western Anatolia. The Menderes Massif is represented by a Pan African-Precambrian “core complex” and an Early Paleozoic-Paleogene “cover series”. The "core complex" contains metasedimentary rocks, leptitic gneisses, migmatites and metagranite. These felsic rocks were cut throughout by metagabbros. The Na-feldspar (albite and oligoclase) deposits ocurred within tectonically controlled metapegmatites extending in NNW-SSE direction. In this study Tahtacı and Acıoluk deposits in the Kavşit-Çine-Aydın district were studied in terms of geological, mineralogical and geochemical aspects. The parent rocks of the ore bodies are represented mainly by gneiss, augen gneiss, leptitic gneiss and metapelitic rocks of the Pan African-Precambrian "core complex". The gneissic rocks consist of quartz, plagioclase and K-feldspar. Biotite, muscovite, granate, zoicite/clinozoicite, titanite, apatite, rutile and opaque minerals are the main accessory minerals. The metapelitic rocks are also composed of quartz, muscovite, biotite, oligoclase, epidote, titanite, apatite, granate, garnet and opaque minerals. The feldspar ore bodies comprise mainly of coarse-grained quartz, albite, oligioclase, ortoclase, muscovite, microcline, apatite and opaque minerals. They are composed of (%63.06-75.49) $SiO_2$; (% 14.18-21.42) Al2$O_3$; (%7.24-9.99) Na2O; (%0.59-2.88) CaO and (%0.11-0.33) K2O. The other major oxides of Fe, Ti and P are below %1 and Mn, Cr, TOC and TOS contents are also below dedection limits. The feldspar ores were enriched in Na, Al and Ca; but depleted in K, Fe, Mg, Mn, Cr, TOC and LOI with respect to the parent rock. The elements of Si, Ti, P and Cr are almost immobile. Acıoluk feldspars contain higher Si and lower Al, Na, Ca, K and LOI than those of the Tahtacı deposit. The both feldspar and host rock samples show very similar chondrite normalized REE patterns characterized by LREE enrichment, HREE deplement and negative Eu anomalies. These data indicate not only a closely genetic relation between host rock and albites but also a typically felsic origine. Statistical data show that the distribution of RE elements in the parent rock are mainly controlled by P-, Mn- and Ca-bearing minerals such as apatite, rhodocrocite, pyrolusite, manganite and Ca-feldspar, while in the albites, are partly controlled by Cr-, Ti- and Si-bearing minerals like chromite, titanite, rutile and anatase. These variations show that RE elements were mobilized during metamorphism processes. Moreover, strong positive correlation among RE elements indicates that the some RE minerals could have been formed by RE elements under the appropriate conditions. All data suggest that the feldspar deposits were derived from the felsic source rocks of the core complex of the Menderes Massiv by means of anatexis, migmatitization, intrusive renovation and matasomatism processes during the high grade Alpine tectono-metamorphic events.