

GEOCHEMISTRY OF VOLCANIC ROCKS FROM THE ÇIÇEKDA OPHIOLITE, CENTRAL ANATOLIA, TURKEY AND THEIR INFERRED TECTONIC SETTING WITHIN THE NORTHERN BRANCH OF THE NEOTETHYAN OCEAN[°]

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ABSTRACT

The Çiçekdağ Ophiolite (CO) is a dismembered unit of the Central Anatolian Ophiolites (CAO) that comprises a number of poorly studied Upper Cretaceous ophiolitic bodies. The CO tectonically overlies the metamorphic platform sequences of the Central Anatolian Crystalline Complex along a moderately steep, northward dipping thrust. The CO retains a partially preserved magmatic pseudos-tratigraphy with the following units from bottom to top: a) layered gabbro, b) isotropic gabbro, c) plagiogranite, d) dolerite dyke complex, e) basaltic volcanic sequence and, f) a Turonian-Santonian epi-ophiolitic sedimentary cover. The magmatic rock units (a- to e-) are part of a comagmatic series of differentiated tholeiites and contain a minor group of late dykes of primitive unfractionated basalt composition.

The basaltic volcanic sequence mainly consists of pillow lavas with a subordinate massive lavas, and rare basaltic breccias alternated with pelagic limestones and radiolarites of Turonian-Santonian age. The less altered pillow lavas are originally olivine-poor, plagioclase-clinopyroxene phyric

tholeiites. Immobile trace element data from both basalts and dolerite dykes show a strong subduction-related chemical signature. When compared to the N-mid-ocean ridge basalt, the studied basaltic rocks show typical suprasubduction zone (SSZ) characteristics: they are enriched in nearly all LIL elements, depleted in HFS elements, show depleted LRE element patterns, and are geochemically similar to the basaltic rocks of the Izo-Bonin arc. Compared with other well-studied central Anatolian ophiolite units (e.g. Sarıkaraman Ophiolite), the CO lacks of an extensive degree of chemical evolution. The geochemical features of the CO are very similar to other eastern Mediterranean Neotethyan SSZ type ophiolites. Based on geological and geochemical data, we suggest that the CO, along with other fragmented units of the CAO, formed by partial melting of an already depleted oceanic lithosphere in an intra-oceanic subduction zone within the converging Izmir-Ankara-Erzincan branch of the Neotethyan ocean. Subsequently, they were placed southwards, onto the passive northern margin of the Tauride-Anatolide Platform.

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