U-Pb zircon geochronology of meta-gabbros from meta-ophiolitic rocks in the Kazdağ Massif, NW Anatolia

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The meta-ophiolitic rocks exposing on the Kazdağ Massif are mainly composed of metagabbro, metadünite, metapyroxenite and serpentinite. The U-Pb zircon geochronology and trace element analyses have been applied to meta-ophiolitic rocks from the Kazdağ Massif. Although it is difficult to link the formation time of zircon to geological and metamorphic processes, there are many of the morphological and geochemical criteria of zircon such as the external and internal structure the Th/U ratio, distinct REE characteristics, the Ti-in-zircon thermometry, which help in unraveling the petrogenetic information. Trace element geochemistry of zircons from three meta-gabbros indicate that these zircons have high Th/U (0.18-1.34) ratios, high $(Sm/La)_N$ and Ce/Ce*values, low La content, and strong negative Eu and positive Ce anomalies, which are commonly see in magmatic zircons. The chondrite-normalized rare earth element (REE) patterns are consistent with magmatic zircons. Zircons from meta-gabbros have mostly oscillatory zoning. The calculated average Ti-in-zircon temperature for zircons is 730 ^{0}C and consistent with magmatic zircon crystallization temperatures. Thus, zircon geochemistry textural characteristics indicate a magmatic origin. LA-ICPMS $^{206}Pb/^{238}U$ concordia ages from magmatic zircons range between 69 and 72 Ma, which is interpreted as a magmatic crystallization age of meta-gabbros. The meta-ophiolitic rocks were emplaced either from the İzmir-Ankara suture zone to the south or from the Intra-Pontide suture zone to the north.

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