



## **Source characteristics and magma evolution of Topuk granitoid (NW Anatolia): constraints from new Sr-Nd-Pb isotope data**

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The Eocene post-collisional magmatic activity produced several granitic plutons in NW Anatolia (Turkey). Located in the north of the İzmir-Ankara suture zone, Topuk granitoid with the age of 48 Ma (Middle Eocene) is a representative example of the Eocene magmatism in NW Anatolia. Topuk granitoid intruded into the basement rocks including Orhaneli ophiolite, and metamorphic rocks (marbles and schists). The main body of Topuk granitoid consists mainly of granodiorite, microgranite, and granodiorite porphyry. It includes magmatic microgranular enclaves (MME) of monzodiorite-quartzmonzodiorite composition. Main plutonic body is cut by aplite, quartz porphyry and hypabyssal dykes and stocks. The main plutonic body and associated hypabyssal rocks show similar mineralogical and geochemical properties.

Geochemically, the main plutonic body is enriched in large ion lithophile elements (LILE) and light rare earth elements (LREE), in comparison to HREE and HFSE; and Ti, Nb, and Ta elements show negative anomalies. New Sr-Nd-Pb isotope data show that different members (granodiorite, MME, and hypabyssal rocks) of Topuk granitoid has similar isotopic compositions and the magma producing all members of the granitoid was originated from enriched lithospheric mantle source which is contaminated by continental crust. We infer that the granitic melt generation beneath NW Anatolia during the Eocene was triggered by either slab-breakoff or partial removal of a thermal boundary layer, resulting in an syn-convergent extension in NW Anatolia and the Aegean region.

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