

# Geochemical and Isotopic constraints on Genesis of foliated Granites in HP Unit of the Tongbai-Dabie orogenic Belt

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Studies on the genesis of the foliated granites in the HP unit are relatively unsubstantial and hysteric, and comprehensive understand about the HP/UHP metamorphism is restricted. In this paper, we present elemental and Pb-Sr-Nd isotopic data of the foliated granites in the HP unit of the Tongbai-Dabie orogenic belt. We discuss the magma source and tectonic background of them and provide constraints on their genesis. Major and trace elemental compositions of the foliated granites in the HP unit are similar to those in the UHP unit. They are generally enriched in Si, alkali, HFSE and depleted in Al, Ti, Ca, Mg, Sc, V, Co, which are characterized by A-type granites. The Pearce discrimination diagrams, Maniar and Piccoli discrimination diagrams for the tectonic interpretation show that the foliated granites both in the HP unit and in the UHP unit formed in the post orogenic environment. The Pb-Sr-Nd isotopic compositions of the foliated granites in the HP unit are also similar to those in the UHP unit. The  $I_{Sr}$ ,  $\epsilon Nd(230)$  and  $T_{2DM}$  of the foliated granites in the HP unit are 0.71193~0.85011, -15.21~-2.52 and 1.23~2.07Ga respectively, and those in the UHP unit are 0.70812~0.82199, -14~-1 and 1.34~2.09Ga respectively.

Similarity of the geochemical features between the foliated granites in the HP unit and in the UHP unit suggests that the foliated granites both in the HP unit and in the UHP unit share common magma source and common evolution trend. Isotope tracing indicates that the magma source of the foliated granites in the HP unit and the UHP unit are related to the UHP metamorphic rock series. The magma would be derived from the partial melting and migmatization of the rapid exhumed and depressed retrometamorphosed UHP metamorphic rocks.

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