

## **Contrasting appinite and vaugnerite suites and related granitoids from NW Iberian Massif. Insight into mantle and crustal sources**

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Variscan calc-alkaline granitoids often carry associated mantle-derived basic to intermediate rocks. Two of these associations are compared to discuss the nature of the mantle and crustal sources involved in their genesis: one has mafic rocks defining an appinite suite and the other has mafic rocks of vaugneritic type.

Related granitoids are syntectonic and located in two different terrains of the Iberian Massif: the Vivero intrusion in the West Asturian-Leonese Zone and the Bayo-Vigo intrusion in the Galicia-trás-os-Montes Zone. The main granitoids are tonalites in Vivero and granodiorites in Bayo-Vigo. Monzonitic granites are the most differentiated rocks in both cases.

The Vivero association is high K calc-alkaline, whereas the Bayo-Vigo one straddles the limit between high K calc-alkaline and shoshonite series. Vaugnerites show higher M number and are enriched in both compatible and incompatible elements than appinites. They are also more LREE enriched and HREE depleted than appinites. The same is valid for the associated granitoids, except for the monzonitic granites which show comparable REE patterns in both examples.

Sr-Nd isotopes of appinites show heterogeneous crustal signature, with compositions comparable to those of tonalites. Vaugnerites show more radiogenic Sr than appinites and less than associated granodiorites and monzonitic granites, which also differ between them.

A mantle metasomatized by subduction-related melts/fluids was involved in the genesis of both types of mafic melts. However, this mantle was more refractory and enriched for the vaugnerites than for the appinites. Some tonalites could be related to the mafic melts by fractional crystallization. However, granodiorites and monzonitic granites of both examples were derived from crustal sources, with more radiogenic Sr for those related to vaugnerites.