Sm/Nd isotopic data and U/Pb geochronology of collisional/ post-collisional high-K to shoshonitic granitoids from the Pernambuco-Alagoas Terrane, Borborema Province, NE Brazil

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Ten granites with compositions ranging from syenites/quartz-syenites to monzogranites/gabbros intrude the Pernambuco-Alagoas Terrane. U/Pb geochronology show an age interval of 100 Ma for this magmatism (625Ma – 520Ma). They have been divided into 3 groups; (**1**) ca. 520Ma of age metaluminous granitoids, showing SiO_2 > 68wt%, REE patterns characterized by $(La/Yb)_N$ ratios ranging from 10 to 15 and lack of Eu anomalies. The Nd-model T_{DM} ages range from 1.9 to 2.2 Ga, and ϵNd (0.6Ga) between –8.7 and –12.4. (**2**) Metaluminous granitoids of ca. 590 Ma with high SiO_2 (> 68 wt%), and LREE contents {$(La/Yb)_N$ > 100], and Sm/Nd signature similar to the granitoids of Group 1. (**3**) Sub-alkaline to peralkaline granitoids with ages in the interval 615-625 Ma. They have lower SiO_2 (50wt% to 68wt%) and high Ba contents (2000 to 10000 ppm). Nd model T_{DM} ages range from 1.2 Ga to 1.5 Ga and ϵNd (0.6 Ga) from –3.6 to –7.7. Granitoids of groups 1 and 2 have Sr/Nd > 25, Zr/Nb < 12 and Ba/La < 15 and WPG signature. Granitoids of group 3 show Sr/Nd < 25, Zr/Nb < 12, Ba/La > 30 and VAG signature,

Geochemical and Nd isotopic data suggest that the granites of the groups 1 and 2 could represent different degrees of partial melting, of 2.0 Ga of age layered Paleoproterozoic crust, in an extensional / post-collisional environment, and the granites of the group 3 were derived through partial melting of Mesoproterozoic metassomatized lithospheric mantle in a collisional to post-collisional environment.