

Nd Isotopic Characterization of the Neoproterozoic Shoshonitic Serra do Catú Complex, Borborema Province, NE Brazil

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The Serra do Catú Complex is intruded in the gneiss migmatites from the northern border of the Sergipano Fold Belt. It comprises metaluminous syenites to quartz syenites, and peralkaline quartz monzonites. The granitoids from the Serra do Catú Complex show shoshonitic affinities.

Sm/Nd analyses were done in the Isotope Geochemical Laboratories, Kansas University, USA. The quartz syenites and syenites show $^{143}\text{Nd} / ^{144}\text{Nd}$ initial ratio ranging from 0.51157 to 0.51166, with ϵNd ranging from -3.65 to -5.46 , and T_{DM} from 1.38 Ga to 1.49 Ga. The quartz monzonites show $^{143}\text{Nd} / ^{144}\text{Nd}$ initial ratios ranging from 0.51157 to 0.51160, ϵNd values ranging from -4.89 to -5.32 , and T_{DM} ranging from 1.48 Ga to 1.56 Ga. A mafic enclave from the quartz monzonite shows $^{143}\text{Nd} / ^{144}\text{Nd}$ initial ratio of 0.511568 and ϵNd of -5.46 , with T_{DM} of 1.58 Ga. The mafic enclave was probably generated from a source with Nd-signature similar to those of the quartz-monzonites. Sm/Nd signature associated to relatively high $^{87}\text{Sr} / ^{86}\text{Sr}$ initial ratios (0.70699 to 0.70725), high contents of LILE, low contents of Ti and Nb, and volcanic arc signature suggest that the protholith of the Serra do Catú granitoids was a mixture between enriched mantle and a Paleoproterozoic crust reworked during the Cariris Velhos event.

U/Pb in zircon yields a crystallization age of 613 ± 7.5 Ma for the syenites of the Serra do Catú Complex.