

ND AND SR ISOTOPE SIGNATURE OF EDIACARAN SYN-COLLISIONAL GRANITES: A CONTRIBUTION FOR THE STUDY OF CRUSTAL TERRANES OF THE CENTRAL RIBEIRA BELT, SOUTHEASTERN BRAZIL

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The use of Nd and Sr isotope data of granites to characterize the evolution of crustal segments and source investigation has been proved to be a very effective tool. In this work isotopic data of selected deformed syn-collisional Ediacaran granites emplaced in different crustal terranes of the central Ribeira belt are presented and compared to each other to better understand the correlation between the isotopic nature of the studied rocks with such crustal terranes. In the literature, the central Ribeira belt is formerly segmented into the Occidental, Oriental, and Paraíba do Sul-Embu terranes. Nd data clearly separate three groups of syn-collisional granites located in these terranes: Group 1 comprises the Maromba (MA), Pedra Selada (PS) and Serra do Lagarto (SL) granites of the Occidental Terrane showing $\epsilon\text{Nd}(t)$ ranging from -10.3 to -12.9; in the Group 2, the Funil Granite is situated in the Paraíba do Sul-Embu Terrane and presents $\epsilon\text{Nd}(t)$ values in between -6.4 to -7.8; and in Group 3 the highest $\epsilon\text{Nd}(t)$ values from -3.7 to -5.0 correspond to Barra Alegre and Itacoatiara granites of the Oriental Terrane. The studied granites have similar petrographic and geochemical behavior, showing porphyritic texture marked by K-feldspar megacrysts, biotite as the main mafic phase, and calcalkaline nature with mostly metaluminous to slightly peraluminous (with Shand index less than 1.1) geochemical signature, in accordance to typical REE pattern showing negative Eu anomaly. A long-term crustal residence for the studied granites is evidenced by crystallization ages in between 570 and 586 Ma, and T_{DM} ages older than 1.3 Ga. Taking into account the calculated T_{DM} ages, the studied granites could be divided into two different age intervals ranging from 1.3 to 1.6 Ga and 1.6 to 2.0 Ga. Considering the magmatic age distribution, the six porphyritic syn-collisional plutons crystallized in the Ediacaran, with a mean weighted age of 581.0 ± 4.6 Ma (Figure 9). This age is concordant in error with previously published data for the magmatic event in Central Ribeira Belt. Taking into account the central age, the magmatism lasted 20 Ma, from the Itacoatiara pluton in the Oriental Terrane to the Serra do Lagarto and Maromba plutons in the Occidental Terrane. An assessment of Nd data in order to investigate possible sources discard melting of metasedimentary host rocks as an important source, but the participation of basement rocks is strongly suggested. The geochemical and isotopic hybrid nature of the studied rocks can be associated with melting of an enriched crust, mixed with a juvenile mantle source.