

Continental Arc Potassium Magmatisms in the South of Borborema Province, NE Brazil

M.L.S. ROSA^{1*}, H. CONCEIÇÃO¹, J.A. CONCEIÇÃO²,
F.S. PEREIRA¹

¹Pós-Graduação em Geociências, Federal University of
Sergipe, Aracaju, Brazil (*correspondence: lrosa@ufs.br)

²Pós-Graduação em Geologia/UFBA – UFOB, Brazil

The Macururé Domain is located in the central part of the Sergipano Orogenic System and represents the southern boundary between the Borborema Province northwards and the São Francisco Craton southwards. In this domain there are about 60 granitic intrusions (lato sensu). The crystallization ages available for the granites range from 571 ± 9 Ma to 631 ± 5 Ma. The Propriá Stock (crystallization age = 615 ± 6 Ma; U-Pb_{SHRIMP}) and the Amparo do São Francisco and Fazenda Alvorada stocks are intrusive in the eastern part of the Macururé Domain and truncate the regional structures. These bodies present similar geological and petrographic features and consist of quartz monzonites and porphyritic granites with centimetric microgranular mafic enclaves which composition ranges from monzonitic to syenitic. These enclaves have well defined contacts, with curved and ameboid geometry, evidencing the coexistence of basic and intermediate-acid magmas. The presence of finer granulation in the enclaves and acicular (skeletal) apatite crystals indicate that these rocks formed at a high crystallization rate. Complex zonation in plagioclase crystals reinforces this hypothesis of mixing between magmas and indicates the existence of important physicochemical instabilities in the evolution of magmas that formed these massifs. Geochemical data revealed the existence of potassic metaluminous I-type granites of shoshonitic nature (Amparo do São Francisco and Fazenda Alvorada stocks), and high-K calc-alkaline granites (Propriá stock). The most evolved terms are poorly peraluminous (corundum <1%). This magmatism is essentially magnesian and typical of a subduction environment (Ta-Nb-Ti troughs) in multielementary diagrams. Chemical-tectonic diagrams show them to be post-orogenic magmas, may explain the absence of regional deformation in them. These rocks also present weak Europium anomalies, as the ones of shoshonitic magmas, as well as fractionation of LREE commonly attributed to garnet retention in the source of orogenic magmas. These stocks correspond to potassic orogenic magmatism with arc signature emplaced in the post-collision period. [*Acknowledgments*: CNPq, FAPITEC, CAPES].