

## **Evolution of the Myaskitic Magmatism in the South Bahia Alkaline Province, NE Brazil**

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The Alkaline Province of South Bahia State (PASEBA) is composed of batholiths, stocks and dykes outcropping over a 6,000 km<sup>2</sup> area. It comprises nepheline-syenites besides subordinate diorites and alkaline granites. This magmatism intrudes Archean and Paleoproterozoic terranes and lasted for ca. 60 Ma (739-676 Ma), being related to the formation of the Rio Pardo Rift, formed during the breakup of Rodinia.

Geochemical data from PASEBA indicate a myaskitic nature, with subordinate carbonatitic dykes. Isotopes of O and C in interstitial calcite grains from the syenites show mantellic values ( $-8 < \delta^{13}\text{C}_{\text{PDB}} < -4$  and  $6 < \delta^{18}\text{O}_{\text{SMOW}} < 7$ ). The more primitive magmas are mildly alkaline and evolved into two different groups. The most voluminous group is represented by the Itarantim Massif rocks and about twelve stocks (e.g. Rio Pardo, Serra da Gruta and Itaju do Colônia) they have evolved through fractional crystallization, which increased SiO<sub>2</sub> from 45% to 59%, whilst alkali increases 2% to 10% (Na<sub>2</sub>O>K<sub>2</sub>O). In the low silica syenites (SiO<sub>2</sub> ~ 50%) alkali contents rise up to 18%. This silica-undersaturated evolutionary trend includes sodalite nepheline syenites and sodalites and is compatible with the myaskitic-agpaitic limit, with accessory minerals like zirconolite, zirkelite, pirochlore, baddeleyite, ilmenite, thorite, thorianite, monazite and xenotime. The second group of magmas with higher silica saturation (e.g. batholiths of Itabuna, Floresta Azul and Araras) also evolves towards alkali increase (6-12%) in rocks at SiO<sub>2</sub> contents between 50-65%; alkali contents then decrease to ca. 7% in alkaline rhyolites and granites (74%SiO<sub>2</sub>). The primitive magmas show IOB geochemical characteristics compatible with the rift setting to which PASEBA belongs. *Acknowledgment: This work was supported by CNPq, CAPES and FAPITEC.*