

Lithochemistry of lamprophyric dykes from Río de la Plata craton in Uruguay

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Mafic dykes with tholeiitic and alkaline nature have been reported for the Rio de la Plata Craton (RPC), both for the Uruguayan shield and for the Tandilia belt in Argentina over the last decades. Even though, the mafic alkaline dykes reported for Uruguay remain lacking of petrological data. This paper presents the first petrological characterization of a set of lamprophyric dykes located in the southern portion of the RPC in the coastal fringe of Montevideo city (Uruguay). The dykes are hosted by medium grade metamorphic lithologies of Paleoproterozoic ages (2.0 – 1.9 Ga) [1], correspondent to amphibolites and gneisses [2] of the Piedra Alta Terrane [3].

The dykes are grey to black colored, fine to medium grain sized, with tabular shapes and 0.3 to 2 meters width. They present sharp to highly irregular contacts with the country rocks and also braided shapes, exhibiting typical textures like chilled margins, re- intrusion and internal banding. They are mainly porphyritic in texture and composed by an exotic mineralogy represented by phlogopite, augite-aegirine, hornblende and leucite. Also, olivine, melilite pseudomorphs, carbonate and feldspathic ocellis surrounded by riebeckite, mica and opaque minerals are present. The groundmass has the same mineralogical composition in addition with alkali feldspar, with variable degree of alteration. According to the geochemical analyses, these dykes have ultrapotassic ($K_2O/Na_2O > 3$) to sodic affinity, peralkaline ($(K_2O+Na_2O)/Al_2O_3 > 1$) to metaluminous nature, with CaO and $Fe_2O_3 \leq 10$ wt.%, high Ba (>5.000ppm), TiO_2 (~3 wt.%), Zr (~650ppm) y Sr (~1500ppm) contents; as well as LILE and LREE enrichment. According to the mineralogical composition the dykes are classified as minettes, and geochemically as lamproites.

[1] Peel & Preciozzi (2006) *5th South American Symposium on Isotope Geology*, 234-237. [2] Oyhantçabal *et al.* (2003). *RSUG Spec. Pub.* 1: 38-48. [3] Bossi *et al.* (1993) *Predevoniano en el Uruguay*, 1: 1-50.