

MONAZITE U-PB (ID-TIMS) GEOCHRONOLOGY OF THE POST-COLLISIONAL ITAOCA GRANITE, CENTRAL RIBEIRA BELT, RIO DE JANEIRO STATE, BRAZIL

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This work presents the first U-Pb age of an “unknown” sample obtained on monazites by the LAGIR radiogenic isotopes laboratory of UERJ, the Rio de Janeiro State University (Valeriano et al. 2004), after the analytical protocols established by Passarelli et al. (2010).

The Itaoca Granite comprises a 5 km stock intruded within metapelitic paragneisses of the São Fidelis unit, in the Costeiro Domain of the Ribeira Belt, eastern Rio de Janeiro State. It is an undeformed biotite-bearing leucogranite with equigranular to porphyritic texture, displaying a well defined magmatic flow foliation.

Eight monazite grains weighting from 5 to 32 µg were selected and dissolved with HCl and a mixed ²³⁵U-²⁰⁵Pb tracer in Savillex™ teflon beakers. Separation of Pb and U was done conventionally with HCl and H₂O using the AG-1x8 resin, and loaded onto double Re filaments, with silica gel and H₃PO₄. Total Pb blanks of 11 pg were obtained during this experiment. The isotopic ratios were measured with the multi-collector TRITON mass spectrometer.

Two (0.4% and 1.3%) concordant grains yield a concordia age at 476.4 ± 1.8 Ma (MSWD = 4.4), interpreted as the crystallization age of the granite. This age is slightly younger than 486.4 ± 5.5 Ma, the weighted average of the U-Pb zircon ages of eight Ordovician post-collisional granites of the Ribeira belt (Valeriano et al., 2011).

The ages of more discordant grains are suggestive of their inherited character: one 1.4% subdiscordant grain yielded a ²⁰⁶Pb/²³⁸U age of 576.9 ± 3.3 Ma. This age coincides with the age of the first and main metamorphic event along the central Ribeira belt. Four discordant grains (1.4% to 5.2%) yield an upper intercept at 628 ± 68 Ma (MSWD = 2.9), which is the most frequent age of the orthogneisses of the Rio Negro Magmatic Arc.

Key Words: monazite; U-Pb; ID-TIMS; Ribeira belt; Brasiliano orogeny.

