2685386

U–PB ZIRCON GEOCHRONOLOGY AND SM-ND ISOTOPIC COMPOSITION OF THE ORTHOGNEISSES FROM PÃO DE AÇÚCAR COMPLEX, BORBOREMA PROVINCE-NORTHEASTERN BRAZIL.

ANA C. A. ACCIOLY[1]; CARLOS A. DOS SANTOS[1]; EDILTON J. DOS SANTOS[1]; BENJAMIM BLEY DE B. NEVES[2]; JOSENEUSA B. RODRIGUES[1]; IAN MCREATH[2]

[1] CPRM Geological Survey of Brazil

[2] Instituto de Geociências. USP – São Paulo University (SP) Brazil

Keywords: *orthogneisses; rhyacian age; Pão de Açúcar Complex; Borborema Province; geochronology*

The Pão de Açúcar Complex is situated in the Transverse Zone of the Borborema Province, NE Brazil. It has been considered part of the basement of the Rio Capibaribe Terrane. It consists of high grade metamorphic rocks, which are composed by banded migmatitic orthogneisses with alternated composition, mafic (dioritic orthogneisses-DO) and felsic (tonalitic-granodioritic orthogneisses-GO). The mineral assemblage of these rocks is mostly Plg(An_{28-35}) + Amp(Mg-hornblende) + Cpx(diopside-hedembergite) and minor Qtz+K-F+Opac-mineral+Zir. Biotite and epidote are the accessory minerals. All orthogneisses show fractionated REE patterns (La_N/Yb_N=10-15) in relation to chondrite, with no significant Eu anomalies. DO have ΣETR higher than GO. In spidergram DO present negative anomalies of Rb, K and Sr, while GO show the opposite, however both display significant negative anomalies of Nb and Ti. The geochemistry signatures suggest most characteristic of lower continental crust. TIMS analyses in selected zircons, from GO sample, outline an upper intercept of 2,145±28 My, and a lower intercept of 1,144±360 My with a MSWD = 1.7. These results define important ages for the Pão de Açúcar Complex. The first one is interpreted as the magmatic crystallization age of the GO protolith, and nonetheless the high SD observed in the second, this age is coincident with a stenian-tonian thermal episode related to Cariris Velhos Event in Rio Capibaribe Terrane. Sm–Nd isotope compositions were obtained for DO whole rock samples and the values of εNd were inferred utilizing the published crystallization age of another dioritic complex of the studied Terrane. The isotopic data of the Sm-Nd system indicates T_{DM} model ages of 1.9 Ga with positive εNd (+2.6, +4). These acquired results denote a post-rhyacian juvenile accretion age. On the other hand GO show older crystallization and T_{DM} model age (~2Ga) probably representing younger magmatic arcs during rhyacian time in the Rio Capibaribe Terrane.