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TH-U-PB$_{(T)}$ EPMA DATING OF MONAZITE IN FELDSPATHIC SCHIST FROM THE ARAGUAIA BELT, NORTHERN BRAZIL

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In situ Th-U-PbT dating with the EPMA of Th- and/or U-bearing minerals, like monazite and xenotime has proven to be of great importance in petrological studies, due to its high spatial resolution and great micro-structural and chemical controls, in spite of the somewhat lower precision when compared with isotopic methods. In the Araguaia Belt, central-northern Brazil, there are no age determinations constraining the main metamorphic events. Geocronological data, mainly K-Ar in biotite, muscovite and hornblende, Rb-Sr in muscovite (560-520 Ma, 536–470 Ma, respectively) are not in good agreement, but suggest an important tectono-metamorphic event close the Neoproterozoic-Cambrian time boundary. Pb-Pb zircon age of 540 Ma was obtained in granites emplaced syn-late tectonic and metamorphism of Araguaia Belt. In this report, we present chemical compositions and dating results for monazite from a micaschist migmatized of the Estrondo Group, collected in a quarry near President Kennedy city. Quantitative chemical micro-analyses were carried out in the Electron Microprobe Lab at the Instituto de Geociências/USP, with a JEOL JXA-86000S machine coupled to a Voyager 4.3.2 automation system. BSE imaging was used to monitor compositional variations within crystals. WDS analytical conditions were 15 kV, 300 nA and 2-5 μm for the column acceleration voltage, beam current and diameter. Attained detection limits were 100, 100 and 90 ppm for Th, U and Pb. All results correspond to relatively homogeneous monazite-(Ce) with high fractionation patterns in the LREEs range. Measured and corrected Th, U and Pb values vary between 724-1093, 126-252, and 64-77 ppm, respectively. The computed weighted averaged age yields 513±14 Ma (2 sigma), which is somewhat younger than the mean ages available for the metamorphism of Araguaia Belt (550-530 Ma). We suggest that the studied monazite grew after the main metamorphic peak, perhaps during an anatexis event, in amphibolite facies conditions.