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AGE AND PROVENANCE OF THE SERRA DE SANTA HELENA FORMATION, BAMBUÍ GROUP: INSIGHTS FROM PRELIMINARY U-Pb DATA

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The São Francisco Basin comprises the thick carbonate-siliciclastic succession of the Bambuí Group and the underlying glacial deposits, covering a large part of the São Francisco craton. The latest geochronological data from the Sete Lagoas Formation, the lowermost unit of Bambuí Group, brought a debate on the puzzle concerning the Ediacaran-Cambrian history of the São Francisco basin. This led us to obtain U-Pb SHRIMP analyses on detrital zircon grains from the Serra de Santa Helena Formation, which covers the Sete Lagoas Formation in the eastern region of the São Francisco Craton. A sample from a very fine-grained arenite intercalated with the typical Serra de Santa Helena siltstones was collected to the north of Lagoa Santa city. The retrieved zircon grains (n=39) are euhedral, prismatic and display igneous oscillatory zoning in cathodoluminescence images. The U-Pb ages show a small range and the gaussian curve indicates a single source age around 630 Ma. Additionally, the youngest 100% concordant grain (629 ± 29 Ma) and the Concordia age (630 ± 5 Ma) for the unimodal age interval constrain the maximum depositional age for the Serra de Santa Helena Formation around 630 Ma. Although sources of similar ages are found elsewhere around the São Francisco craton, the probable source is the Rio Doce magmatic arc located just to the east, in the Araçuaí orogen. These ages are older than those previously reported for the Sete Lagoas Formation (ca. 560 Ma), indicating contribution of older sources in the upper Bambuí Group. The ages around 560 Ma also point to sources located in the Araçuaí orogen, specifically in the collisional granites (ca. 585-545 Ma), suggesting that the uplift of this orogen could be (at least in part) coeval with the filling of the Bambuí basin.