Contemporaneous evolution of the Palaeoproterozoic–Mesoproterozoic sedimentary basins of the São Francisco–Congo Craton

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Abstract: Deposition of Palaeo–Mesoproterozoic sedimentary rocks on the São Francisco–Congo craton started during Statherian taphrogenesis (1.8–1.75 Ga), as verified by ages of *c*. 1.7 Ga determined for volcanic rocks of the lower part of the Espinhaço Supergroup in the states of Minas Gerais and Bahia (Brazil). These basins contain volcanic rocks and conglomerates alternating with sandstones, argillites and dolomites, deposited in continental, transitional and marine environments. The rocks in the westernmost sector of the Congo Craton (Central Africa) compose the Chela Group, comprising sandstones, argillites and dolomites. In the easternmost region of the Congo Craton the Kibaran, Akanyaru, Kagera and Muva supergroups occur: the first three in the Kibaran Belt and the last in the Irumide Belt and on the Bangweulu Block. They consist predominantly of pelites and schists, sandstones and, in lesser proportion, conglomerates, deposited in shallow marine, fluvial and lacustrine environments. Their sedimentation ages are constrained through ages on felsic tuff layers as follows: Chela Group 1790 $\pm$ 17 Ma, Kagera Supergroup 1780 $\pm$ 9 Ma, and Muva Supergroup 1879 $\pm$ 13 Ma. These data show that broadly coeval and sedimentologically similar epi-continental sedimentary basins occurred on the São Francisco and Congo cratons, suggesting the possible existence of a long-lived wide epi-continental sea covering large areas of these cratons during Statherian times.

The São Francisco Craton of South America and the Congo Craton of Africa are stable Archaean blocks of a once coherent landmass (Fig. 1) that broke up during the opening of the Atlantic Ocean. These cratonic nuclei are considered to have become stabilized during the Palaeoproterozoic Trans-Amazonian (South America) and Eburnian (Africa) events, and underwent a succession of later events along their margin including the Mesoproterozoic Espinhaço cycle in South America (Brito Neves *et al.* 1980), the Kibaran and Irumide orogens in Africa, often associated with the formation of the Rodinia supercontinent, and the Neoproterozoic Pan-African/Brasiliano orogenic events during the agglutination of Gondwana. The Pan-African/Brasiliano orogenesis reworked the edges of both cratons, giving birth to the Brasília, Araçuaí, Sergipano, Rio Preto and Riacho do Pontal belts in Brazil and the West Congo, Kaoko, Damara, Lufilian, Oubanguides and Zambezi belts and the East African orogen in Africa (Fig. 2).

The initial coherence of the São Francisco and Congo cratons prior to Gondwana was based largely on the occurrence of comparable Precambrian epi-continental sequences on both sides of the Atlantic Ocean (Trompette 1994). In the São Francisco Craton, the Statherian taphrogenesis (1.8–1.75 Ga) opened a series of intra-continental rifts, some of which expanded into sag basins (Brito Neves 2002), into which volcanic and sedimentary rocks were deposited, collectively called the Espinhaço Supergroup. On the Congo Craton, the Palaeo-/Mesoproterozoic successions comprise the Chela Group on the Angola–Kasai Shield (Torquato & Fogaça 1981), the Kibaran and Akanyaru/Kagera supergroups in the central African Kibaran Belt (Royal Museum for Central Africa 1990; Theunissen *et al.* 1991) and the Muva Supergroup on the Bangweulu Block and within the Mesoproterozoic Irumide Belt (Daly & Unrug 1982; De Waele & Mapani 2002; De Waele 2005; Fig. 2).

In Brazil these successions have been studied in detail and have their stratigraphical nomenclature

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