Biostratigraphy constraints on chemostratigraphy of the Mbuji-Mayi Supergroup, Democratic Republic of Congo: Evidence for a Late Mesoproterozoic-Early Neoproterozoic age

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The Mbuji-Mayi Supergroup is a sedimentary sequence in DRC unaffected by regional metamorphism [1]. It consists of two distinct successions: a lower, ~500 m thick siliciclastic sequence of the BI Group (dated at 1125 Ma [2] or between *ca*. 1175 Ma and 882 Ma [3]) and an upper, ~1000 m thick carbonate sequence with stromatolitic build-ups and black shales of the BII Group directly overlain by basaltic lavas dated at 948 ± 20 Ma [4]. Five boreholes from Sankuru – Mbuji-Mayi region have been sampled in detail. Siliciclastic rocks were investigated for microfossils. The typical late Mesoproterozoic - early Neoproterozoic acritarch, *Trachyhystricosphaera aimika,* is reported herein for the first time in central Africa, and co-occurs with other eukaryotes and prokaryotes forming an exceptionally diverse (55 taxa) and well-preserved microfossil assemblage. However the absence of the pre-Sturtian index species *Cerebrosphaera buickii* [5] and of other taxa typical of pre-Ediacaran Neoproterozoic deposits such vase-shaped microfossils *VSM* [6] suggest that the Mbuji-Mayi Supergroup was deposited before ca. 820 Ma. Moreover, $\delta^{13}C_{carb}$ positive and negative excursions in the BIe - BIIc interval [3] are similar to variations in late Mesoproterozoic - early Neoproterozoic carbonate successions [7] [8], with no evidence so far for the Bitter Springs Stage as previously suggested [3] [9]. This is consistent with the previous age constraints and with the preliminary results on dating diagenetic monazites from the BI Group, which gave an age of *ca*. 1155 Ma [10].

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