

Thermal maturation of carbonaceous material from Mbuji-Mayi Supergroup (Kasai, Democratic Republic of Congo).

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The Mbuji-Mayi Supergroup is a sedimentary sequence in DRC unaffected by regional metamorphism. It consists of two distinct successions: a lower, ~500 m thick siliciclastic sequence of the BI Group and an upper, ~1000 m thick carbonate sequence with stromatolitic build-ups and black shales of the BII Group directly overlain by basaltic lavas [1]. Radiometric data suggest a Latest Meso- to Early Neoproterozoic age [2, 3, 4, and 5]. A well preserved and diversified microfossil assemblage is reported including 54 taxa belonging to 32 genera. The potential Late Mesoproterozoic-Tonian index fossil *Trachyhystrichosphaera aimika*, is reported for the first time in central Africa, and co-occurs with other eukaryotes and prokaryotes [6]. Thermal maturation calculated on macerate residues, using geothermometer for low-grade metamorphism [7] reveals thermal palaeoenvironments of organic matter, ranging from 180 to 279° C (average = 249 ± 37 °C). The range of thermal maturity is similar, in both microfossils and amorphous organic matter. Raman reflectance (R_{mcRo} %), which is also an index indicative of maturity [8], ranges from 1.05 to 2.55 % (average = 2.01 ± 0.42 %). So, organic matter from Mbuji-Mayi is likely into a maturation stage corresponding to oil window.

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