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Geochemistry of Muro Banded Iron-Formation, Central Nigeria

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ABSTRACT

Muro Banded Iron-Formation occurs in the Proterozoic Toto Schist Belt, central Nigeria. It consists preponderantly of oxide facies and minor carbonate facies. The oxide facies is made up of alternating bands of quartz (metachert) with those of hematite + magnetite + martite ± goethite, chlorite, pyrrhotite and garnet. The carbonate facies consists of quartz (metachert) + siderite ± goethite. In the oxide facies the total iron content (Fe_2O_3t) ranges from 33.95% to 48.08% and the SiO_2 content from 50.33% to 64.50%. In the case of the carbonate facies, the Fe_2O_3t content varies from 15.42% to 20.66% and SiO_2 content from 66.84 to 72.86%. The Al_2O_3 content is generally low ranging from 0.1% to 0.54% in the oxide facies, and 0.24% to 0.31% in the carbonate facies. Chemically, the Muro Iron-Formation is similar to the Lake Superior-type iron-formations in terms of the distribution of the major and trace elements. This taken together with similarities in lithological associations indicates its deposition in similar environments *i.e.* shallow intra-continental or restricted/barred marine basin. The very low Al_2O_3 contents indicate minor clastic dilution of the original chemical precipitates.

KEYWORDS

Muro Iron-Formation; Oxide Facies; Carbonate Facies; Geochemistry; Central Nigeria

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