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U-Pb Geochronology of the Jebba Granitic Gneiss and Its Implications for the Paleoproterozoic Evolution of Jebba Area, Southwestern Nigeria

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Author(s)

C. T. Okonkwo, V. Y. Ganey

ABSTRACT

Jebba area southwestern Nigeria forms part of the Nigerian basement complex which lies in the Neoproterozoic PanAfrican mobile belt. It is underlain by several lithological units among which is a polydeformed granitic gneiss. This rock has been dated by LA-ICP-MS yielding a concordant U-Pb zircon age of 2207 ± 20 Ma indicating the crystallization age of the granite protolith. This early Rhyacian age and its affinity with within-plate granites indicates emplacement during crustal extension and rifting preceding the main phase of the Eburnean orogeny. The strong, early, shear fabric, S_1 , in the rock is interpreted to be also of Paleoproterozoic age i.e. imprinted during the Eburnean orogeny. The Jebba granitic gneiss is thus correlatable with the widely abundant Paleoproterozoic granitic magmatism now represented by many orthogneisses and documented in other parts of southwestern Nigeria, the West African craton, the Borborema Province, the Gurupi Belt, Sao Luis craton and Sao Francisco craton in Brazil.

KEYWORDS

Jebba Area Nigeria; Granitic Gneiss; U-Pb Dating; Paleoproterozoic; Eburnean Orogeny

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