

Petrographic and geochemical constraints of Kombissiri leptynites (Burkina Faso).

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The Paleoproterozoic basement of the Man-Léo ridge is made up of a large mass of crystalline formations (TTG granitoids and Paleoproterozoic intrusions) and crystallophyll formations (greenstone belts and associated plutonites), which occupy nearly 80% of the territory of Burkina Faso. In the crystallophyllian formations, the so-called leptynitic rocks and formerly defined as early granitoids having undergone high-grade metamorphism have radiometric ages (obtained by the Pb-Pb method, U-Pb on zircons) between 2153 ± 7 and 2117 Ma. Through the petrogeochemical data and according to the color of the rock, two leptynite facies have been defined in the Kombissiri zone. These are orthoderived in that the protoliths are trondhjemites, granodiorites, and monzogranites. The analysis of the major elements of these rocks clearly showed that they are metaluminous to slightly peraluminous and weakly potassic. The analysis of the trace elements and the examination of their spectra (rare earths) specify that the original magma evolved by differentiation and that it comes from the mantle or from the partial fusion of a basic crust. Their genesis was performed in a geodynamically agitated environment (subduction zone or rear volcanic arc). The metamorphic parageneses encountered testify to a metamorphism of the greenschist facies. Although garnet and amphibole are encountered, a conclusion cannot be drawn on high -grade metamorphism. Nevertheless, the barometric studies in progress will make it possible to conclude. Structurally, the leptynite formations studied are orientated along the NE-SW direction, which is the direction of local elongation of the Birimian greenstone belts.