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Crustal growth of Archean and early Proterozoic granitoids of the Ivindo region in the Souanké and Bomalinga areas from Congo Craton (North-West Republic of Congo)

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Most interpretations of the Archean rocks in the Central Congo Craton have only focused on data from Cameroon and Gabon, few of them have included data from the Ivindo region in northwest Republic of Congo. This study presents for the first time a regional interpretation of the Archean rocks of the Congo craton from data on granitoids of the Ivindo region. Modal compositions vary between quartz-rich granitoids or pegmatite, granodiorites, granites and tonalites. These rocks are metaluminous and peraluminous ($\sim 0.8 \leq A/CNK \leq 1.3$) and define magmatic lineages that are predominantly calc-alkaline, tholeiitic, and rarely highly potassic calc-alkaline. REE diagrams show that these rocks are rich in rare earth elements (LREE) and large ionic lithophile (LILE), while exhibiting significant negative anomalies in Nb-Ta, and in Ti. Such geochemical signatures indicate that these granitoids formed possibly in a subduction tectonic setting. These geochemical signatures are comparable with the Dharwar, North China, and Pilbara cratons, also in similar Archean cratons.

The U-Pb ages based on zircon indicate that tonalites were emplaced at (2891.2 ± 10.6 and 2820.37 ± 6.23 Ma), pegmatite were emplaced at (2878.2 ± 13.6 and 2891.0 ± 12.6 Ma), granodiorite were emplaced at (2828.98 ± 6.23 Ma) and granite were emplaced at (2430.19 ± 8.11 Ma). These periods of magmatism describe here reveals the magmatic history of the Archean granitoids of the Congo craton in the Ivindo Basement from 3085 ± 21.6 and 2430.19 ± 8.11 Ma.

Keywords: Archean, Crustal growth, Granitoids, Ivindo region, Congo craton, Republic of Congo.