

Chromites of the Makalondi greenstone belt (Niger Liptako Province, West Africa)

H. Garba Saley*, A. Soumaila, M. Konaté

Abdou Moumouni University of Niamey, Faculty of Sciences and Technology, Department of Geology, Groundwater and Georesources Laboratory, POB: 10662, Niamey, Niger

*E-mail: hamidougarbasaley@gmail.com

The Makalondi greenstone belt is located in the Niger Liptako Province which corresponds to the northeastern edge of the Man Shield (West African Craton). Many chromite indexes have been found in meta-ultrabasites, metabasites and their alterites (Fig. 1). These meta-ultrabasite rocks are represented by talc-schists, talc-chloritoschists, while the metabasites rocks are represented by chloritoschist and slaty amphibolites. The mineralization appears with lens shaped deposits of chromitite, which can reach 45 m long.

The methodological approach implemented consists of a field study followed by a polarizing metallographic microscopic analysis (Fig. 2).

The N100° trending regional schistosity and foliation are molded around the chromite lenses. These lens show magmatic “bedding” (Figs. 2A,B) marked by an alternation of chromite-rich levels relayed by talc-chlorite rich levels. According to the classification of Dill (2010), these chromite indexes can be ranged in the magmatic chromium mineralization of stratiform type or podiform type in an ophiolitic complex or in a Bushveld type complex.

The eluvial indexes are represented by pebbles and angular to subangular heterometric blocks more or less rich in chromite (Figs. 2C,D). This may explain the contents variations for which Machens (1964) gives up to 31% in Cr₂O₃ whereas Hassan and Marcos (1983, 1984) give a value of 17.35%.

Keywords: Makalondi, chromitite, podiform type, ophiolitic complex, Bushveld complex

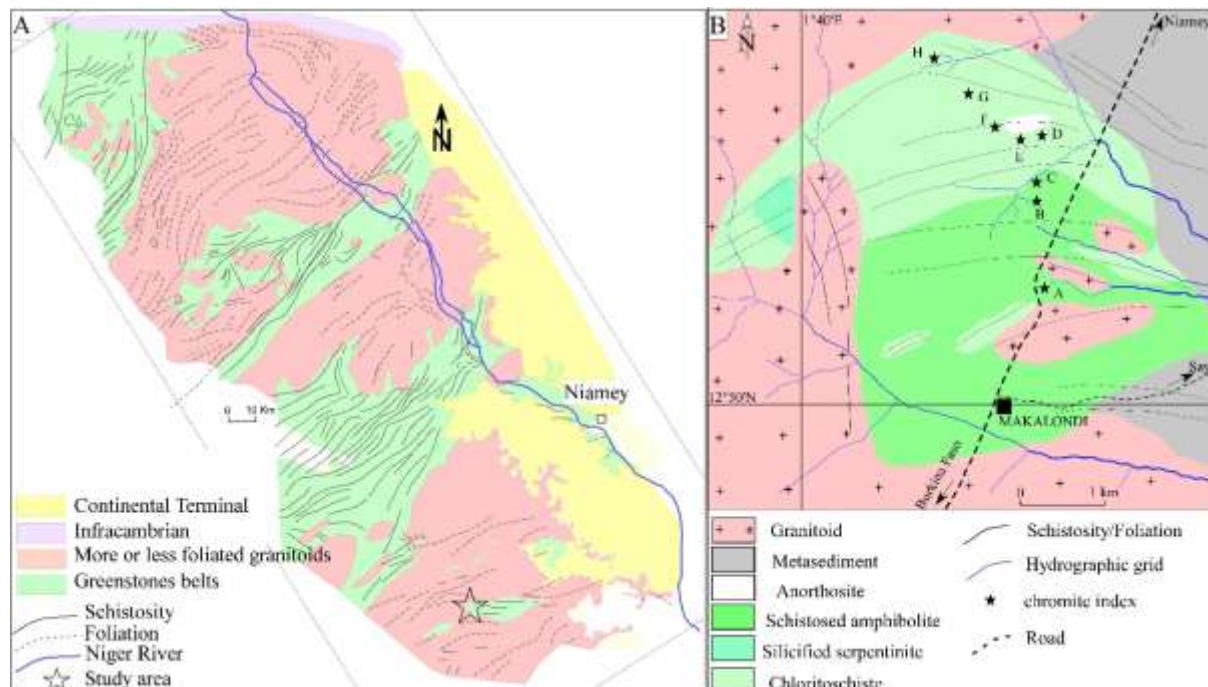


Fig. 1: (A) Location of the study area in the Niger Liptako province (Machens, 1967, modified). (B) Distribution of the chromite indexes (Machens, 1973, modified).

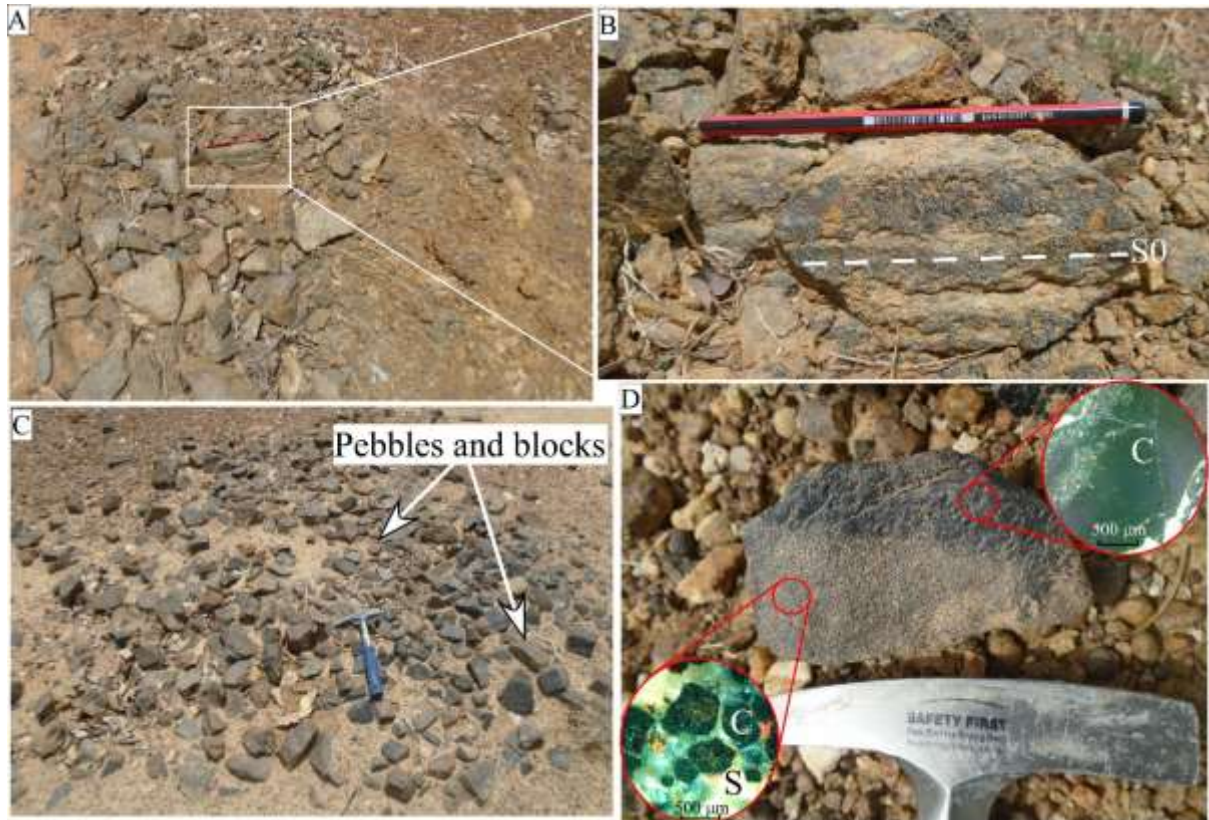


Fig. 2: A- and B- indexes (H index, Fig. 1B) of chromite with magmatic “bedding” S₀; C- Pebbles and blocks of chromite; C- and D- (B Index, Fig. 1B) Pebbles having levels with massive chromite (C) and levels of isolated chromite crystals in a silicated gangue (S).

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