

Magmatism, dynamism and mineralization : example of the Tifrit trough (western Algeria)

Mohamed Mahmoudi, Miloud Benhamou*

Laboratoire de Géodynamique des Bassins et Bilan Sédimentaire (GéoBaBiSé), Département des Sciences de la Terre, Faculté des Sciences de la Terre et de l'Univers, Université d'Oran 2 Mohamed Ben Ahmed, Algeria

*E-mail: milbenhamou@gmail.com

Northwest Algeria is punctuated by outcrops of Palaeozoic age oriented along a NE-SW direction. This alignment is of Atlasic type and could continue from Ghar-Rouban to the Zaccar massif, along with the Tifrit trough and the Bechtout massif (Fig. 1).

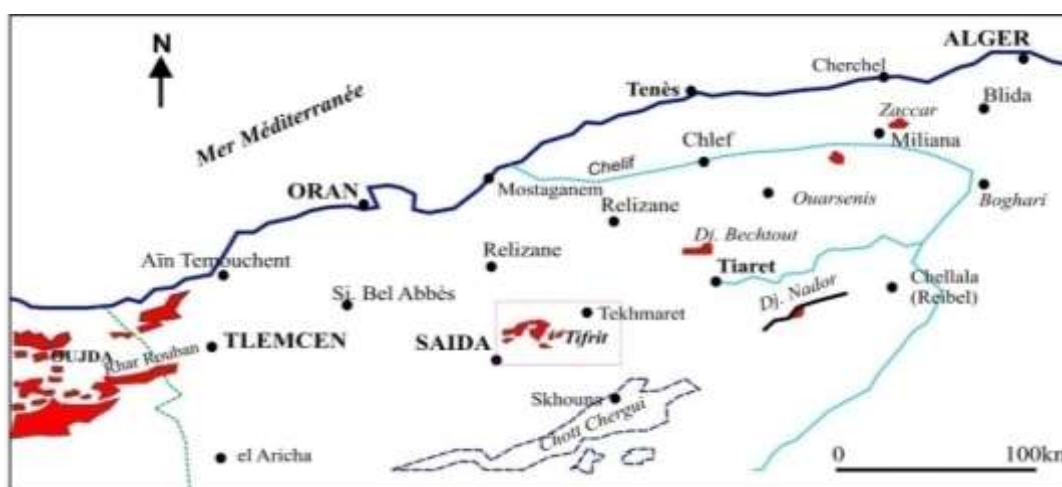


Fig. 1: location of the Palaeozoic massifs of Western Algeria (Lucas, 1952, modified)

Our study focus on the Tifrit trough to clarify Palaeozoic volcanic and para-volcanic emissions. Indeed, we preceded by a cartographic study on topographical background, on photo-aerial and on satellite image in order to determine the geochronology, dynamic and structural aspect of the primary magmatism of this region of the highlands, Northwest of Algeria. The western part of Tifrit presents two types of Palaeozoic magmatic outcrops with a semi-extrusive and extrusive character: (i) microgranite stocks and rhyolite dykes with ante-Mesozoic ages as they are reworked in the micro-conglomerates dated Infra-Lias ; (ii) dacitic breccias, basalt flows and microdolerite veins.

The evolution of this crystallophyllian primary sedimentary basin is closely related to tectono-magmatic activities. The study of Palaeozoic igneous facies as well as mafic, intermediate and felsic ones, shows geodynamic contexts of a basin having acquired its construction during the orogenic Variscan cycle like their homologues in Eastern Morocco (Hoepffner, 1987) and in Western Europe.

These facts are demonstrated thanks to the petrographic study of the intra-Visean dacitic breccias (Mahmoudi, 2009) that remakes sedimentary, metamorphic and volcanic fragments. The engine of the construction of this basin would imply a transtensive and transpressive tectonics accompanied by magmatism and an epi- and anchi-zonal metamorphism in sedimentary sequences: sandy-pelitic, arkosic and psammitic.

The mineralization associated with these types of basins are mainly sulphides, oxides, sulphates and native metals of vein types and in disseminations emplaced during post-magmatic and hydrothermal processes in close relationship with Hercynian and Alpine tectonics.

Keywords: Magmatic, mineralization, post-magmatic, tectonic, hydrothermal, Palaeozoic, Hercynian, Alpine, Tifrit, Saida

References

Hoepffner, C., 1987. La tectonique hercynienne dans l'Est du Maroc. *Thèse Sciences*, Université de Strasbourg, 225p.

Lucas, G., 1952. Bordure nord des hautes plaines dans l'Algérie occidentale, primaire, jurassique. Analyses structurales. *XIX^{ème} Congrès Géologique International*, Alger, Monographie, régionale, Algérie, 1(21), 140p.

Mahmoudi, M., 2009. Le magmatisme paléozoïque du môle de Tifrit, Algérie nord Occidentale, *Mémoire de Magister*, USTHB-Alger, 39-50.