



Petrographic and Geochemical Study of the basic and Ultrabasic Xenoliths rocks at Tell Habran (southwest Syria)

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The petrographic and Geochemical study for the Xenoliths associated with the quaternary alkali bases at Tell Habran showed large petrographic differences that reflect various balance conditions, origin and different formation phases being derived either from the lower crustal or the upper mantle origin. Most Quaternary lavas in Syria contain a wide variety of mafic and ultramafic Xenoliths of the lower crustal and the upper mantle origin. The host rocks, however are mainly alkali olivine basalt and basanite.

The Xenoliths suite have been classified into three main groups based on their quantities, texture, mineral composition and chemical composition. The first is Cr-diopside Group is the dominant group (65%). It is characterized by protogranular or equigranular texture and subdivided to Spinel, Lherzolite, Hazburgite, Dunites and Wehrilites. Secondly, augite group represent 25% and mostly characterized by fine to medium grained igneous and/or mosaic texture and subdivided to Websterite, Pyroxenite, Pyroxenite, Kaersutite and Kaersutite Megacrysts. Finally, the Mafic lower crustal xenoliths Group represent only 10% and characterized by fine to medium grained, igneous cumulate texture and subdivided to Pyroxen, Granulite, Spinel and Gabbro and Gabbro.

The content, location and composition of the minor and major chemical elements for the Xenoliths of the upper crustal proved that they were formed as a result of partial crystallization after the formation of basalts. Xenoliths indicate similar composition to broadly gabbroic (tholeiitic) and its enrichment in rare elements (REE) was attributed mostly to the effect of retained solution and the metasomatism that occurred without direct tectonic relation.