Introduction of Accessory Minerals in Ghareh Gheshlagh Granitoid Mass

Hamideh Farahmand, Dr. Syed Mohammad Hossein Razavi

1PhD student in petrology, Islamic Azad University, Northern Tehran Branch, Tehran, Iran
2Department of Geology, Islamic Azad University, Northern Tehran Branch, Tehran, Iran

ABSTRACT

Ghareh Gheshlagh granitoid are located 52 kms from Kaleybar town. This granitoid mass which consists minerals of quartz, orthoclase and plagioclase, includes various accessory minerals like zircon, sphene and apatite.

INTRODUCTION

Ghareh Gheshlagh county is located in eastern Azerbaijani province 52 kms away from Tabriz city which is adjacent in north to Aras River and Azerbaijan republic, in south to Ahar town, in southeast to Varzghan town and in east to Ardebil province. Other counties in Kaleybar are Ghareh Gheshlagh, Hajlou and Tatlar. The area under study is analyzable in a 1:100000 map at 47° 26’ 25” longitude in east and northern latitude of 38° 32’ 49”.

Analytical Techniques:

To identify the accessory minerals in the region of Ghareh Gheshleh, field research and laboratory studies were carried out. First samples were taken, then thin layers were made of the samples that led to the discovery of accessory minerals like zircon, sphene and apatite. These minerals are visible under microscope.

3. Introducing accessory minerals of the region:

3.1. Amphibole:

This mineral is abundantly found in igneous and metamorphic rocks and in any kind of acid-intermediate and basic igneous rocks with more frequency in intermediate ones [2]. Amphibole minerals are in form of subautomorphic crystals with rhombohedral cleavage inside granites (Fig.1.3).

3.2. Sphene:

One of abundant accessory minerals in igneous rocks are found in many acidic and intermediate titan-rich rocks. This mineral is formed in granites, sinites and diorites with hornblende and also in low temperature vein rocks of the Alpes type and it is the result of releasing titan in these rocks [3]. This mineral is witnessed in subautomorphic in the region’s granites. In sphene, the coloration is mostly stained and mostly faded brownish or greenish (Fig.3.2).

3.3. Apatite:

This mineral is found in carbonates, pegmatites, granites and alkaline rocks [2]. In most cases its automorphic crystals are in form of inclusions inside alkali-feldspar and plagioclases (Fig.3.3).
3.4. Zircon:

This mineral is mainly an inclusion of biotites since it is formed in the initial stages of crystallization. The size and shape of zircon crystals compared to the width and length of the mineral can be similar throughout a granitic body. The change of this ratio in a mass is suggestive of the fact that different magmas created it. In some igneous rocks, zircon crystals are seen in circular shape that is probably because of the absorption of edges of the crystals by the primary magma [4]. Zircon granules are almost colorless and circular and are seen in small colorless quantities under a light without analyzer. Zircon has very strong relief.

4. Microscopic shapes

![Hornblende in P.P.L. light](image1)

![Hornblende in X.P.L. light](image2)

Fig. 3.1: hornblende.

![Sphene in PPL light](image3)

![Sphene in XPL light](image4)

Fig. 3.2: sphene.

![Apatite in PPL light](image5)

![Apatite in XPL light](image6)

Fig. 3.3: Apatite.

Conclusions:

While doing field research on accessory minerals such as apatite, sphene, amphibole and zircon, the presence of sphene and amphibole in Ghareh Gheshlagh granite was approved. This conclusion has been arrived at using microscopic layers of rocks.
REFERENCES


