

## **MEGAPLAGIOPHYRIC TRACHYBASALTS OF THE CHATKAL-KURAMIN RIDGE**

**Kurbonov A.A.<sup>1</sup>, Ileshov Q.M.<sup>1</sup>, Ishbaev X.D.<sup>1</sup> and \*Dalimov N.R.<sup>2</sup>**

<sup>1</sup>*Institute of geology and geophysics named after H.M. Abdullayev resources (Tashkent, Uzbekistan)*

<sup>2</sup>*State committee on geology and mineral resources (Tashkent, Uzbekistan)*

*\*Author for Correspondence: n.dalimov@gmail.com*

### **ABSTRACT**

According to Petrography dictionary, B.I. Piip (1963) was the first to call the wavy lava euporphyric structure, consisting of plagioclase crystals (0.5-3 cm) and groundmass, megaplagiophyric. There are few phenocrysts of colored minerals in these rocks. Among the wide variety of igneous formations of the Chatkal-Kuramin region, megaplagiophyric rock varieties are poorly studied. This is apparently because earlier such rocks were described under the general name "plagioclase porphyrite", which does not clearly reflect the specificity of their composition. For the first time in Uzbekistan, these rocks are described as megaplagiophyric trachybasalts and are described in the literature by I.N. Ganiev in the area of the Hawasai graben of the river basin. Kuchar.

**Keywords:** *Composite Dikes, Megaplagiophyric Trachybasalts Median Tien – Shan, Kuramin Zone, Chatkal-Kuramin Ridge*

### **INTRODUCTION**

According to Ganiev (1995), megaplagiophyric trachybasalts compose sill-like deposits oriented to the northeast direction. The length of the largest of them reaches 1 km with a width of 40 m to 100. The contacts of the body with the displacement agglomerate andesite tuffs with lenses of volcanomictic sandstones are subconcordant, but ubiquitously distinct intrusive. The macroscopic rocks in question are dark gray to black in color. Their texture is sharply porous. Porphyry precipitates of plagioclases are characterized by the forms of flattened wide tabular crystals (1.5 × 1.5 cm), sometimes forming glomeroporphyritic intergrowths. The megaplagiophyric trachybasalts of the "Kuchara strata" belong to the Shurabsai trachybasalt-trachyandesite complex. According to the stratigraphic position and the results of determining the complexes of organic remains, the age of the complex is dated as the Asselian-Sakmarian (Arapov, 1983; Tulyaganov *et al.*, 1984; Dalimov, Rafikov 1986, and others). The absolute age data, determined by the potassium-argon method, showed an interval of 220-288 million years; the isochronous rubidium-strontium date obtained by us (281 ± 5 million years) confirms the data of geological observations (Ganiev *et al.*, 1992). It should also be noted that, according to the data of Akhundzhanov *et al.*, (1995), megaplagiophyric trachybasalts were found on the right bank of the Angren River in the form of a small thickness (4-8 m) and length (up to 100 m) of a swarm of dikes of sub-latitudinal and sub-meridional and north -Eastern strike among the granitoids of the Karamazar complex (Akchasay river, Akmechetsay river) and they named it as "megaplagioclase porphyrite". A characteristic feature of dikes is a megaporphyry rock structure with fine-grained and fine-grained groundmass. The rock texture is subparallel, expressed by the oriented arrangement of plagioclase phenocrysts (Fig. 1). Composition: porphyry phenocrysts (60%) - plagioclase (labradorite, andesine 58%), pyroxene (diopside, augite 2%); glassy, fine-grained bulk (40%) - ore mineral (magnetite, hematite) + pyroxene-biotite-plagioclase + calcite, chlorite, quartz. The absolute age of megaplagiophyric trachybasalts in the Akchaya river basin is 294 ± 33 million years (Akhundzhanov *et al.*, 1995). These dikes are part of the Shurabsaysk trachybasalt-trachyandesite complex.

### **MATERIALS AND METHODS**

The materials for this article were collected during the thematic works on the topic "Study of the nature of the relationship and connection of endogenous gold mineralization within the main gold ore fields of the

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Chatkalo-Kuramin region with dikes and dike formations" in the period from 2010-2015 in the Goskomgeology. To collect materials, 20 outlets were set up in the field for sampling, exploring the area, and carrying out macro and micro petrographic sections. The routes passed through swarms of dykes in the North. Nuratau, Almalyk and other nearby areas. Also, when writing this article, reports were used that were compiled in the USSR (1960, 1975) for a complete understanding of the structure of the district. Materials on complex dikes were taken from the materials from Buzanskaya (1955). Silicate analyzes of 50 samples were carried out at the Central Laboratory of Goskomgeology (Republic of Uzbekistan).



**Figure 1.4: Megaplagiophyric trachybasalt in the Akchasai River basin**

**RESULTS AND DISCUSSION**

In the area under consideration, megaplagiophyric trachybasalts are exposed in the upper reaches of the river. Chiralmasay, on its starboard side in the Pskem ridges. These dikes occur among the granitoids of the Beshtor-Tunduk intrusion of the Riphean age. Within the beshtor-tunduk massif, basic dikes are very



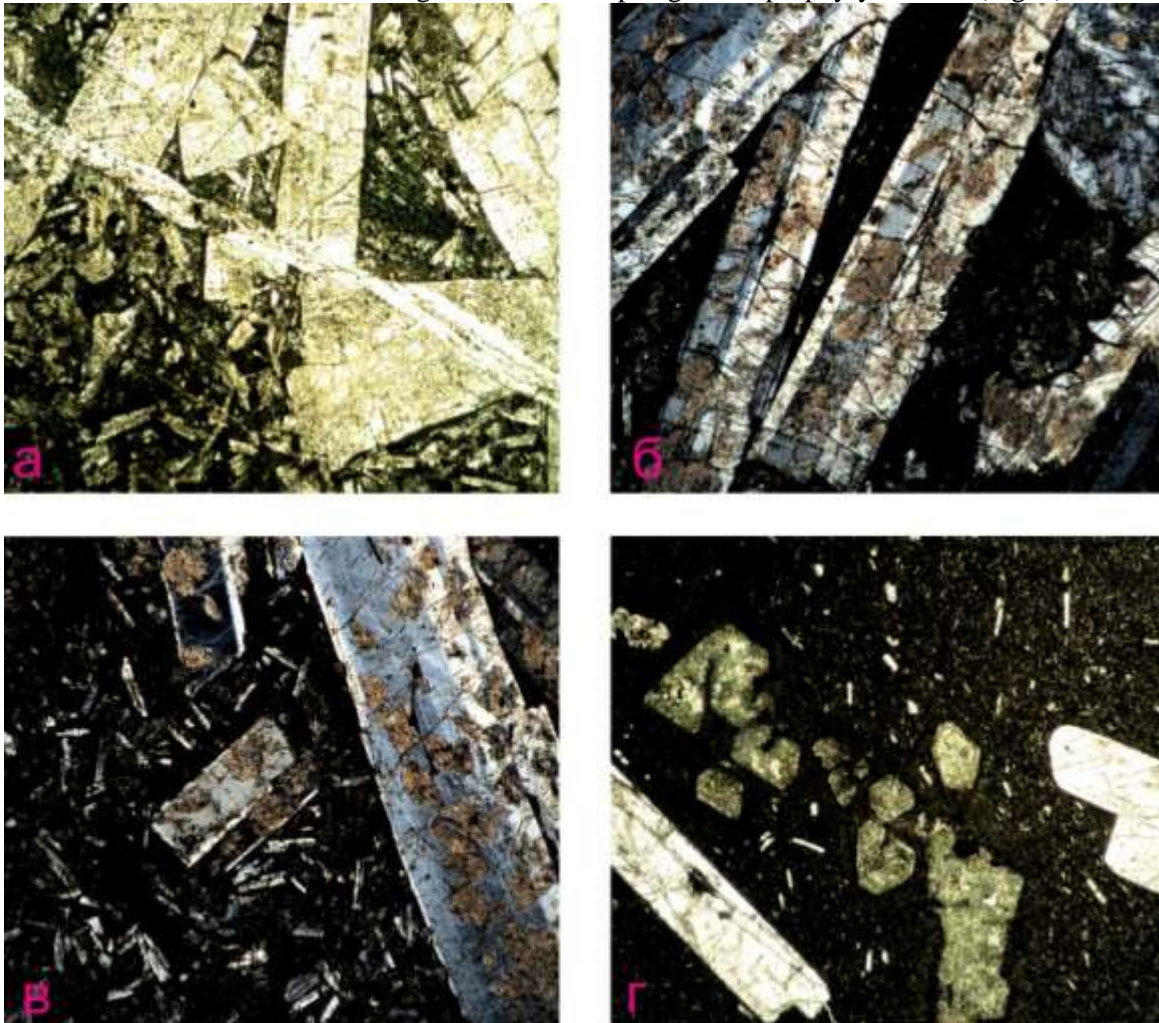
**Figure 2: Megaplagiophyric trachybasalt**

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widespread, which are composed of metadiabase, diabase, olivine dolerites, diorites, and lamprophyres. They form a northeastern dike belt with steep dip angles. Dikes cut through granitoids of the intrusion, quartz-vein zones, and do not pass into sedimentary formations of the Lower Paleozoic. The absolute age of these dikes, according to the data of S.S. Saydyganiev [2009], is  $672 \pm 18$  Ma (Rb-Sr).

Dikes of megaplagiophyric trachybasalts of northeastern strike ( $320^\circ$ ), the contact dip is steep, 5 m thick. Traceable for 15 m, and sharply pinches out with an obtuse angle.

The megaplagiophyric trachybasalts are dark gray to black with a greenish tint. Their structure is porphyry, composed mainly of plagioclase. The plagioclase is polysynthetic and zonal, twinned. Phenocrysts (35-55%) of plagioclase are constantly present in the form of thin prisms, the size of crystals varies from 0.3 to 1.5 cm, often forming chamomile-shaped glomeroporphyry clusters (Fig. 2).



**Figure 3: Megaplagiophyric trachybasalt**

*The structure of the rock is porphyry. In the right-hand central part of figure (a), a porphyry segregation of aegirine-augite is expressed, which is formed by prismatic grains with a green color. In the right-hand central part of figure (b), there is a pronounced porphyry segregation of olivine, strongly altered forms. In the quench of the strongly altered dike, parallel-oriented olivine crystals are located in the glassy hyalopilitic groundmass. The main mass is hyalopilitic, it contains glomeroporphyritic crystals of plagioclase. Section X-190 Uv. 40x; a - without analyzer, b, c - with analyzers; Thin section X-190/1 Uv. 40x; d - with analyzers.*



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At the contact of the dikes with the host rocks, plagioclase phenocrysts are located parallel to each other with the contact, emphasizing its convolutions. The size of the porphyry precipitation of plagioclase is noted for the hardening of the dikes. The bulk is cryptocrystalline.

Under the microscope, the central parts of the dikes, megaplagiophyric basalts, form a porphyry structure with a hyalopilitic groundmass. The porphyry segregations are composed of elongated tabular plagioclase, and aegirine-augite is rare, less often olivine. Porphyry inclusions of plagioclase form elongated tables of the surface of grains with sericitization. Phenocrysts were formed on two generations of PII - forms large crystals no less than 1.1 cm in size, in composition they are labradorite (An63) (in terms of the angle of symmetric extinction). It contains more idiomorphic PIII grains in composition and corresponds to Labrador (An55). In the groundmass, small crystals of plagioclase, in composition corresponding to andesine (An42). Aegirine-augite has green pleochroism, they are rarely found in the breed, they are elongated-prismatic (Fig. 3a). The quench of the dike is porphyry with hyalopilitic groundmass. At the contact of glassy dikes, the basis is up to 80-90%, the glass content of the central parts of the dike accounts for up to 20% of the total rock. The porphyry precipitates of the quench are represented by plagioclase and olivine (Fig. 3d); here, plagioclase in composition corresponds to andesine (An38). Strongly chloritized olivine crystals are parallel-oriented and create a fluid texture.

### **REFERENCES**

- Akhmedov NA (2000).** Stratified and intrusive formations of Uzbekistan. *Chief Editor Akhmedov N.A.* T IMR, 541.
- Akhundzhanov R, Saydyganiev SS, Usmanov AI (1983).** Formation assignment of megaplagioclase porphyry dikes to the right bank of the Angren (Middle Tien Shan). *Uzbek Geological Journal*, 6 7-11.
- Ganiev IN (1995).** megaplagiophyric trachybasalts of the Hawasai granben (basin of the Kuchar River, Northern Fergana). *Uzbek Geological Journal*, No. 1, 30-35.
- Levinson-Lessing FYu and EA (1963).** Struve Petrographic Dictionary, Moscow,
- Saydyganiev SS (2009).** Rubidium-strontium geochronology of magmatic formations in the Sredinny and Southern Tien Shan. *Geology and mineral resources.*, No. 6, 17-24.