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ENDOGENOUS AND EXOGENOUS GOLD MINERALIZATION IN THE TERRITORY OF AZERBAIJAN REPUBLIC

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Analysis of the geological structure and region development history allows to systematize all known gold ore deposits of Azerbaijan on the formational basis which can be used during metallogenetic analysis of the territory of the Republic. These deposits are highly placer-forming mother lodes of gold located within the Lesser Caucasus and partly the Greater Caucasus, Mountain Talysh, Nakhchyvan. The recent valleys' placers connected with these deposits are formed in the upper, middle and lower parts of the rivers, on the alluvial fans being located in floodplains and terraces above the floodplain. They have been included in the Upper Quaternary alluvium. The deluvial and eluvial gold-bearing placers can be found in the slope deposits and in the dissected relief. Gold placers manifestations, having mainly alluvial genesis, have been determined in basins of almost all rivers of the Azerbaijan part of the Lesser Caucasus. "Iron hats" of the sulfide deposits are also of interest by which the territory of the Republic is rich.

Keywords: endogenous and exogenous gold mineralization, gold-bearing placers, Azerbaijan part of the Greater and Lesser Caucasus

The territory of Azerbaijan Republic being constituent part of the vast Mediterranean folded and metallogenic belt in tectonic and metallogenic relationships according to many peculiarities of the geological structure and metallogeny it is similar to the internal part of the Pacific metallogenic belt: Extreme north-east of Eurasia (Kolyma, Anadyr, Kamchatka and others), Japan, the Philippines, Chile, Peru, Mexico, the Western states of USA (Alaska, California, Nevada) but its Lessercaucasus part without considering time of mineralization is also similar to Urals and some regions of Kazakhstan and Central Asia.

In recent decades many deposits with defined and expected resources of commercial value and perspective manifestations of properly gold and considerably gold-containing complex ores of gold-quartz, "black-shale", gold-sulphide-quartz and gold-sulphide-carbonate-quartz, gold-sulphide-barite-quartz, gold-copper-porphyry, gold-copper-pyrite, gold-copper-polymetallic pyrite and other formations and subformations as well as zones with veinlet, veinlet-disseminated and disseminated sulfide and sulfide-quartz mineralization of gold being perspective for establishing new

deposits were founded within the Lesser Caucasus and the southern slope of the Greater Caucasus [2-4]. These objects - primary sources of placer gold have been defined at different depths and have been subjected to the processes of supergene leaching, the exogenous chemical and physical weathering and exaration, erosion damage. They feed in varying degrees alluvial and proluvial Apsheron-Quaternary age deposits occurring in abundance in this part of the vast basin of the Kura-Araz river system by gold.

The objects located within the Lesser Caucasus and partly the Greater Caucasus, Mountain Talysh and Nakhchyvan are mainly related to the group of high placer-forming mother lodes of gold. They include the primary deposits of gold ores proper as well as small deposits of placer gold; manifestations of the gold ores; deposits and a group of gold ores manifestations of "black shale" type in the carbonaceous shales and other terrigenous complexes; deposits of considerably gold containing complex ores and nonferrous rare metals, mainly gold-copper porphyry formations; deposits of copper-pyrite and silver-copper-polymetallic pyrite formations confined to Jurassic shale stratum of the southern slope of the Greater

Caucasus. At present initial stage of the study it has been determined that in respect of placer gold there are the most significant alluvial and alluvial-proluvial rivers formations of east-north-east slope of the Lesser Caucasus and the eastern part of the Nakhchivan region characterizing by the most dense location of mother lodes of the placer gold and proximity of the placers accumulations to these sources. The alluvial and alluvial-proluvial sediments of the medium- and lower Araz depressions, channel and flood plain sand-gravel-cobble sediments of Kura river valley are also potentially highly prospective for placer gold. It has been found gold mineralization of Absheron-Quaternary, alluvial and alluvial-proluvial sediments occurring in abundance here, it has been determined a number of small deposits and many manifestations of the placer gold. For this purpose it is recommended a selection of the prospective targets deserving the first-priority additional exploration and full appreciation in order to preparation for the detailed prospecting and following development of the resources of hardrock gold and considerably gold-containing complex ores as well as the selection of prospective targets for placer gold worthy of carrying out exploration and exploitation works, research and assessment of the explored reserves and probable gold resources (and associated commercial components) of alluvial and alluvial-proluvial sediments of the rivers in the Republic including firstly rivers of E-NE slope of the Lesser Caucasus [1, 4].

The presence of the gold-ore and complex gold-containing mother lodes of different formations, intensive gold release from mother lodes, the involvement of gold in the stream flows activity area, sufficiently profluent regime of drainage system with longitudinal grade from 1.3 to 1.7% are the favorable factors during placers' formation. Middle streams of rr. Kyurakchay (Chyragderesi, Togan, Madenyal, Sarychukhur occurrences of gold (gold-quartz-sulphide and vein type)) and Goshgarchay are prospective in relation to placer gold mineralization with content of gold more than 150 mg/m³. Moreover the areas with undefined prospectivity relevant to the contents of 50-100 mg/m³ are determined in the basin of rr. Ak-

stafachay (Dilijan, Gabagly, Khamzachimen, Gyzylypara, Soyugbulag, Askipara, Farakhli). The gold-ore deposits, the deposits of substantially gold-containing complex ores relate to the group of high placer-forming mother lodes of gold. The basins of rr. Kyurakchay, middle Goshgarchay and Akstafachay, Tovuzchay, Shamkirchay, Zayamchay, Khachinchay, Terterchay and others have been defined as high-priority prospective areas. Richer placer gold deposits of the Lesser Caucasus are formed in the upper (Soyutluchay, Zarchay and etc.), middle and lower parts of the rivers, on alluvial fans, in Kura molasses. The alluvial fans are characterized by lenticular, small-volume, fine-grained gold. The most favorable factors for the formation and preservation of placers with geological and geomorphological point of view are the middle river flows where relatively wide valleys with accumulative and erosion-accumulative terraces are developed. Gold in placers has size from the dust-like to middle dimension and weight from 0.1 to 989 mg. The undeniable fact is gold accumulation in the "iron hats" of sulfide deposits by which the territory of Republic is rich. Undeniable fact is the fact that. Quiet often the content of gold is 5-10 times higher than in the primary sulfide ores in the oxidation zone of these deposits. All this requires immediate research of "iron hats" gold mineralization [1].

As a result of analysis and generalization of materials according to gold mineralization of the territory of Azerbaijan Republic one can be concluded the following: the territory of the Republic of Azerbaijan is highly perspective for different commercial and genetic deposits' types of the hardrock and placer gold and is worth of carrying out the necessary complex of scientific research and productive geological explorations for investigation and re-evaluation of resources of presently known (and determination of new ones) deposits of gold and gold-containing complex ores and their preparation for commercial development.

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AZƏRBAYCAN RESPUBLİKASI ƏRAZİSİNİN ENDOGEN VƏ EKZOGEN QIZILLILIĞI

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Regionun geoloji quruluşunun və inkişaf tarixinin analizi Azərbaycanın bütün məlum olan qızıl filizi yataqlarını formasiya əsasında sistemləşdirməyə imkan verir və respublika ərazisinin metallogenik analizində istifadə oluna bilər. Bu yataqlar qızılın yüksək səpinti əmələ gətirən köklü mənbələri ola bilər və Kiçik Qafqazın, qismən isə Böyük Qafqazın, Dağlıq Talışın, Naxçıvanın ərazilərində yerləşirlər. Bu yataqlarla əlaqədar olan müasir dərələrin səpintiləri çayların yuxarı, orta və aşağı hissələrində, çıxma konusunda, çayların çaybasarında və çaybasarüstü terraslarda yerləşərək, üst dördüncü dövr allüvialara daxildir. Yamac çöküntülərində və yarıqlıma relyeflərində delyüvial və elyüvial qızılı səpintilər aşkar oluna bilər. Əsasən allüvial genezisə malik olan qızıl səpinti təzahürləri Kiçik Qafqazın Azərbaycan hissəsinin demək olar ki, bütün çaylarının hövzələrində müəyyən edilmişdir. Həmçinin respublika ərazisində zəngin olan kolçedan yataqlarının “dəmir papaqları” da maraq doğurur.

Açar sözlər: endogen və ekzogen qızılılıq, qızılı səpintilər, Kiçik və Böyük Qafqazın Azərbaycan hissəsi

ЭНДОГЕННАЯ И ЭКЗОГЕННАЯ ЗОЛОТОНОСНОСТЬ ТЕРРИТОРИИ АЗЕРБАЙДЖАНСКОЙ РЕСПУБЛИКИ

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Анализ геологического строения и истории развития региона позволяет систематизировать все известные золоторудные месторождения Азербайджана на формационной основе, которая может быть принята на вооружение при металлогеническом анализе территории республики. Эти месторождения являются высоко россыпеобразующими коренными источниками золота, расположены в пределах Малого Кавказа и частично Большого Кавказа, Горного Талыша, Нахичевани. Связанные с этими месторождениями россыпи современных долин образуются в верхней, средней и нижней частях рек, на конусах выносов, располагаясь в поймах рек и на надпойменных террасах включены в верхнечетвертичный аллювий. В склоновых отложениях и в расчлененном рельефе могут быть обнаружены делювиальные и элювиальные золотоносные россыпи. Проявления россыпей золота, главным образом аллювиального генезиса, установлены в бассейнах почти всех рек Азербайджанской части Малого Кавказа. Также представляет интерес “железные шляпы” колчеданных месторождений, которыми богата территория республики.

Ключевые слова: эндогенная и экзогенная золотоносность, золотоносные россыпи, Азербайджанская часть Малого и Большого Кавказа