

# Gemological Potentials of East Azerbaijan Province, NW of Iran

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Beside of different mineral deposits (Au, Cu, Pb, Fe, Al ...), North-West of Iran has much precious gems potential. According to endurance of various orogenic, tectono-magmatic and metamorphic events, there has one of the complex geological zones in Middle East region. These different processes caused to existence of different semi-precious gems in East Azerbaijan Province. More than 11 gem-minerals and 5 gem-stones are reported by this paper authors from studied area. In this research, reported gems are classified by their origins.

**Sedimentogenic Gems:** According to spreading of Cenozoic sedimentary basins and sedimentation processes, various aragonites, precious fire-yellow opals, and Tripoli formations are observable in studied area.

**Magmatogenic Gems:** Following of magmatic events, existence of widespread hydrothermal activities are observable. These events are effective for silica family gem mineralization in this case. Various blue, red, black, green and yellow agates, particularly in Miyaneh area. (SE of studied area). Some of these agates are comparable with Eskishehir blue agate in Turkey. Other parts of this group like as amethyst, rose quartz, smoky quartz, citrine, milky quartz, rock crystal, and red jasper are consists of many mineralizations in Ahar and Miyaneh areas. Beside of silica family, malachite-azurite-crisocola is observable into oxidized zones of various hydrothermal copper mineralizations. There are big masses of mentioned gems in Ahar-Qara-Dag copper metallogenic zone, and Miyaneh region. Finally olivaceous epidote family group can be intruded as a metasomatic mineral which formed in any propilitic hydrothermal alteration zones.

**Metamorphogenic Gmes:** They have contact metamorphic and skarn origin. Garnets and epidotes are the most important gems in skarn zones of studie area.

**Placer Gems:** placers are the main sources for gem minerals in the world. There are some eu-hedral pyroxene (augite-egerine) placers in Islamy Peninsula of Urmia Lake. Their regular shapes and beautiful colors are benefit for substitute gem productions.

**Key words:** *agate, chrisocola, gem, hydrothermal, East Azerbaijan, Iran*