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# Genetic Aspects of Gold Mineralization at Some Occurrences in the Eastern Desert of Egypt

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The Eastern Desert of Egypt is well known as a gold-mining area since ancient times, there're more than 95 gold deposits and occurrences spread the whole area covered by the basement rocks of Precambrian age. The basement rocks of the Eastern Desert of Egypt constitute the Nubian Shield that has formed a continuous part of the Arabian-Nubian Shield before the opening of Red Sea (Oligocene-Early Miocene). Commonly, the system of gold-bearing quartz veins in the Eastern Desert is clearly structural controlled related to brittle–ductile shear zones that mostly developed during late deformational stages of the evolution history for basement rocks in the Eastern Desert. This running study principally aims to contribute the mineral resource potential of the gold deposits in Egypt, so particularly Fatira, Gidami and Atalla occurrences have been involved into a comprehensive study based on field, structural, mineralogical, geochemical and genetic investigations. It is intended to better understanding for the characteristics, distribution controls, conditions and age of mineralization in relation to the age of the hosting rocks intrusion to find if there're genetic links between the gold mineralization and the evolution of the host intrusive complex.

Several authors suggested that the gold mineralization was related to the intrusion of the (postorogenic) Younger granites. Other authors interpret these deposits as products of hydrothermal activity induced either by metamorphism or cooling effects of early Paleozoic magmatism or as combined metamorphic/magmatic episodes.

The prime focus will be directed to the ore itself and the associated hydrothermal alteration zones based on detailed maps and well-distributed samples network and geochemical anomalies distribution. The laboratory studies included microscopic examination (reflecting and transmitting microscopy) to allow for determination of the hosting rocks types and mineralogical changes related to the gold mineralization in each area and revealing the ore mineralogy and the ore textures, geochemical analyses (including rare earth elements) are to be used in order to determine the tectonic setting and magmatic evolution of the host intrusions, scanning electron microscope, microprobe analysis, stable isotopes and fluid inclusions will serve as a new part of this study in detection of the origin and the physico-chemical conditions (P-T condition) for the gold precipitation, Age dating of the host intrusion and mineralization will be based on K-Ar for dating potassium-bearing minerals in fresh host rocks and hydrothermal mineral phases.