

ABSTRAK

KARAKTERISTIK ALTERASI, MINERALISASI DAN GEOKIMIA DEPOSIT EMAS PADA WILAYAH “X”: INDIKASI *INTRUSION-RELATED GOLD DEPOSIT*

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Daerah “X” pada Pegunungan Meratus, Kalimantan Selatan merupakan salah satu prospek deposit emas yang memiliki potensi besar di bagian tenggara Pulau Kalimantan. Pada daerah “X” dikontrol oleh aktivitas tektonik subduksi, kolisi, hingga fase pasca-kolisi. Endapan emas yang terdapat pada daerah penelitian mengindikasikan tipe endapan *Intrusion-Related Gold Deposit (IRGD)*, yaitu endapan emas yang berasosiasi langsung dengan intrusi magma felsik hingga intermediet yang bersifat reduksi. Metode yang dilakukan berupa pemetaan geologi, alterasi dan mineralisasi yang dikaji lebih lanjut untuk menentukan kadar unsur menggunakan analisis *Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES)*. Litologi daerah penelitian terdiri dari gabro, serpentinit, dan diorit porfiri yang diinterpretasikan sebagai intrusi pada daerah penelitian. Intrusi ini memberikan gambaran fluida hidrotermal yang menyebabkan alterasi yang berkembang dan ditemukan alterasi silika+lempung (ilit+kaolinit) serta klorit+silika yang berkembang pada suhu 150-300°C. Analisis geokimia menunjukkan adanya logam berharga berupa *Au* (2,4 g/t) serta elemen jejak berupa *Ag-Cu-Pb-K-S-As-Mo*. Data penelitian dilakukan perbandingan dengan deposit emas bertipe *IRGD* yang menghasilkan interpretasi deposit emas berupa indikasi *IRGD* pada zona proximal.

Kata kunci: Pegunungan Meratus, *IRGD*, Alterasi, Mineralisasi, *ICP-OES*.

ABSTRACT

ALTERATION, MINERALIZATION AND GEOCHEMICAL CHARACTERISTICS OF GOLD DEPOSITS IN THE “X” AREA: INDICATIONS OF AN INTRUSION-RELATED GOLD DEPOSIT

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The “X” area within the Meratus Mountains, South Kalimantan, is one of the most prospective gold-deposit regions in the southeastern part of the island of Borneo. The geology of the area is controlled by a complex tectonic history involving subduction, collision, and post-collisional events. The gold mineralization identified in the study area exhibits characteristics indicative of an Intrusion-Related Gold Deposit (IRGD), a deposit type genetically associated with reduced-magma felsic-to-intermediate intrusions. The research methodology involved geological mapping, hydrothermal alteration mapping, and mineralization studies, which were further integrated with geochemical analyses using Inductively Coupled Plasma–Optical Emission Spectrometry (ICP-OES) to determine elemental concentrations. The lithological units recognized in the study area comprise Gabbro, Serpentinite, and Diorite Porphyry, with the latter interpreted as an intrusive body emplaced within the study area. This intrusion is inferred to have acted as the source of hydrothermal fluids responsible for the development of alteration assemblages, including silica-clay alteration (illite + kaolinite) and chlorite-silica alteration, formed under temperatures ranging from approximately 150 to 300°C. Geochemical analyses reveal the presence of economically significant gold mineralization, with Au concentrations up to 2.4 ppm, accompanied by pathfinder elements including Ag, Cu, Pb, K, S, As, and Mo. Comparative evaluation of the geological, alteration, mineralogical, and geochemical characteristics with established IRGD systems suggests that the gold deposit in the study area is most consistent with an Intrusion-Related Gold Deposit (IRGD) developed within the proximal zone of the mineralizing system.

Keywords: Meratus Mountains, IRGD, Alteration, Mineralization, ICP-OES.