GEOLOGI DAN KARAKTERISTIK ALTERASI MINERALISASI DAERAH SRATI DAN SEKITARNYA, KECAMATAN AYAH, KABUPATEN KEBUMEN, JAWA TENGAH

SARI

Indonesia merupakan negara yang kaya akan sumberdaya alam, hal ini didasari dimana letak Indonesia secara geologis yaiu pada Cincin Api Asia-pasifik (*Ring Of Fire*) yang menghasilkan banyak sumberdaya mineral. Salah satu contoh sumberdaya alam tersebut adalah endapan logam yang berkaitan dengan magma seperti endapan sistem hidrotermal. Endapan logam yang terbentuk dapat berasal dari sistem hidrotermal yang beragam di Indonesia mulai dari epitermal, porfiri, dan skarn. Untuk mengidentifikasi endapan logam yang terbentuk, dilakukan metode penelitian berupa Analisis Petrografi, Analisis *Ore Microscopy,* Analisis Slab, Analisis XRD (*X-Ray Diffraction),* Analisis SEM (*Scanning Electron Microscopy*), dan Analisis FA-AAS (*Fire Assay – Atomic Absorbtion*). Berdasarkan hasil pengambilan dan pengolahan data, kondisi geomorfologi daerah penelitian terdiri dari Perbukitan Denudasional bergelombang sedang – kuat, Perbukitan Intrusi, dan Perbukitan Karst. Kemudian kondisi stratigrafi daerah penelitian dari tua ke muda terdiri dari Breksi Dasitik Tuf, Breksi Diatrem, Breksi Hidrotermal, Lava Andesit, Intrusi Andesit, dan Batugamping. Alterasi yang berkembang berupa Silisifikasi, Argilik Lanjut (Kuarsa +Alunit +Illit ±Diaspor), Argilik (Kuarsa+Kaolinit+Illit), dan Propilitik (Kuarsa +Klorit +Kalsit -Illit). Keberadaan mineral bijih seperti enargit, kalkosit, kovellit, pyrit, galena, sphalerit, dan kalkopirit merupakan indikator bahwa mineralisasi jenis endapan sulfidasi tinggi berkembang di daerah ini. Alterasi dan mineralisasi di daerah penelitian dikontrol oleh struktur geologi dan litologi batuan, dimana terdapat sesar mendatar berarah tenggara-barat laut dan sesar mendatar berarah barat daya-timur laut. Berdasarkan analisis AAS juga terdapat kadar mineral yang bernilai ekonomis terutama emas (Au) berkisar antara 0,14 – 0,18 ppm dan tembaga (Cu) berkisar antara 19 – 27 ppm. Berdasarkan karakteristik alterasi dan mineralisasi dari hasil analisis yang dilakukan, endapan epitermal di daerah penelitian memiliki tipe sulfidasi yang tinggi.

Kata Kunci *:* Aterasi, Mineralisasi, Epitermal Sulfidasi Tinggi, Daerah Srati, Kabupaten Kebumen

GEOLOGY AND CHARACTERISTIC OF ALTERATION AND MINERALIZATION AT SRATI AREA, AYAH DISTRICT, KEBUMEN REGENCY, CENTRAL JAVA

ABSTRACT

Indonesia is a country endowed with abundant natural resources, a condition primarily attributed to its position along the Asia-Pacific Ring of Fire, which generates a wealth of mineral resources. One example of such natural resources is metallic ore deposits associated with magmatic activity, particularly those formed through hydrothermal systems. These metallic deposits in Indonesia can originate from various types of hydrothermal systems, including epithermal, porphyry, and skarn systems. To identify the formed ore deposits, several analytical methods were employed, including Petrographic Analysis, Ore Microscopy, Slab Analysis, X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM), and Fire Assay – Atomic Absorption Spectroscopy (FA-AAS). Based on data collection and interpretation, the geomorphological conditions of the study area comprise moderately to strongly undulating denudational hills, intrusive hills, and karst hills. Stratigraphically, the rock units in the study area, from oldest to youngest, consist of Dacitic Tuff Breccia, Diatreme Breccia, Hydrothermal Breccia, Andesite Lava, Andesite Intrusion, and Limestone. The observed alteration types include Silicification, Advanced Argillic (Quartz + Alunite + Illite ± Diaspore), Argillic (Quartz + Kaolinite + Illite), and Propylitic (Quartz + Chlorite + Calcite – Illite). The presence of ore minerals such as enargite, chalcocite, covellite, pyrite, galena, sphalerite, and chalcopyrite serves as an indicator of the development of a high-sulfidation style of mineralization in the area. Both alteration and mineralization processes in the study area are structurally and lithologically controlled, with strike-slip faults trending southeast–northwest and southwest–northeast. Furthermore, based on AAS analysis, the study area contains economically valuable mineral content, particularly gold (Au) with concentrations ranging from 0.14 to 0.18 ppm, and copper (Cu) ranging from 19 to 27 ppm. Based on the characteristics of alteration and mineralization derived from the conducted analyses, the epithermal deposit in the study area is classified as a high-sulfidation type.

Keywords: Alteration, Mineralization, High Sulfidation Epithermal, Srati Area, Kebumen Regency