

## INTISARI

Kecamatan Kaligesing di Pegunungan Kulon Progo memiliki prospek alterasi hidrotermal dan mineralisasi endapan bijih epitermal di beberapa titik di Desa Kaligono dan sekitarnya. Penelitian pendahuluan mengenai alterasi hidrotermal dan mineralisasi bijih di daerah Kaligono dan sekitarnya telah dilakukan, namun dirasa belum dapat merepresentasikan kondisi geologi dan karakteristik serta potensi endapan mineral di daerah Kaligono. Perlu dilakukan penelitian yang relatif lebih mendetail dan komprehensif guna menjelaskan kondisi geologi dan karakteristik endapan mineral serta potensinya di daerah Kaligono. Tujuan penelitian ini adalah untuk mengetahui kondisi geologi, karakteristik alterasi hidrotermal dan mineralisasi bijih, serta kontrol geologi terhadap persebaran alterasi hidrotermal dan mineralisasi bijih di daerah penelitian. Penelitian ini mengintegrasikan pekerjaan lapangan, pengujian dan analisis laboratorium berupa analisis petrografi, mikroskopi bijih, XRD dan analisis kimia mineral menggunakan *micro*-XRF. Kondisi geologi di daerah penelitian tersusun oleh satuan breksi andesit, satuan intrusi andesit, satuan intrusi dasit, *dike* diorit, dan satuan batugamping. Struktur geologi yang ditemukan berupa kekar ekstensi, kekar gerus, serta sesar geser mengiri, sesar geser menganan, dan sesar naik. Arah struktur geologi di daerah penelitian memiliki tren baratlaut-tenggara dan timurlaut-baratdaya. Alterasi hidrotermal di daerah penelitian dapat dibagi menjadi empat zonasi alterasi yaitu zona alterasi filik (kuarsa-serisit-illit-pirit), zona alterasi argilik (illit-kaolinit-smektit±kuarsa), zona alterasi propilitik (klorit-kalsit±pirit), dan zona alterasi propilitik dalam (klorit-kalsit-epidot±pirit). Endapan bijih epitermal di daerah penelitian merupakan tipe endapan epitermal sulfidasi rendah. Terdapat 4 tahap pembentukan endapan bijih di daerah penelitian yaitu tahap awal, tahap menengah, tahap akhir dan tahap supergen. Mineralisasi terjadi pada batuan menengah-asam dari jenis *dike* diorit, satuan intrusi andesit, dan satuan intrusi dasit yang memiliki permeabilitas dan memiliki sifat *brittle* untuk membentuk struktur geologi yang menjadi jalan bagi fluida hidrotermal. Sesar geser berarah timurlaut-baratdaya dan sesar geser berarah baratlaut-tenggara diinterpretasikan sebagai sesar yang mengontrol alterasi dan mineralisasi di daerah penelitian. Model genetik endapan epitermal di daerah penelitian adalah kuarsa-sulfida Au±Cu dan karbonat-logam dasar Au.

**Kata Kunci:** Pegunungan Kulon Progo, Mineralisasi, Epitermal, Kaligono,

## ***ABSTRACT***

Kaligesing sub-district in the Kulon Progo Mountains has the prospect of hydrothermal alteration and epithermal ore deposit mineralization at several points in Kaligono Village and its surroundings. Preliminary research on hydrothermal alteration and ore mineralization in the Kaligono area and its surroundings has been carried out, but it is felt that it cannot represent the geological conditions and characteristics, and potential of mineral deposits in the Kaligono area. A relatively more detailed and comprehensive study is needed to explain the geological conditions and characteristics of mineral deposits and their potential in the Kaligono area. The purpose of this study was to determine the geological conditions, characteristics of hydrothermal alteration and ore mineralization, as well as geological control of the distribution of hydrothermal alteration and ore mineralization in the study area. This research integrates fieldwork, testing and laboratory analysis in the form of petrographic analysis, ore microscopy, XRD, and mineral chemistry analysis using micro-XRF. Geological conditions in the study area are composed of andesite breccia units, andesite intrusion units, dacite intrusion units, diorite dikes, and limestone units. The geological structures found were in the form of extension joint, shear joint, as well as left slip fault, right slip fault, and reverse faults. The direction of the geological structure in the study area has a northwest-southeast and northeast-southwest trend. Hydrothermal alteration in the study area can be divided into four alteration zones, namely phyllic alteration zone (quartz-sericite-illite-pyrite), argillic alteration zone (illite-kaolinite-smectite±quartz), propylitic alteration zone (chlorite-calcite±pyrite), and inner propylitic alteration zone (chlorite-calcite-epidote±pyrite). The epithermal ore deposit in the study area is a low-sulfidation epithermal deposit type. There are 4 stages of ore deposit formation in the research area, namely the initial stage, the intermediate stage, the final stage, and the supergene stage. Mineralization occurs in intermediate-acid rocks of the diorite dike, andesite intrusion unit, and dacite intrusion unit which have permeability and brittle properties to form geological structures that provide pathways for hydrothermal fluids. Strike-slip faults trending northeast-southwest and strike-slip faults trending northwest-southeast are interpreted as faults that control alteration and mineralization in the study area. The genetic models of epithermal deposits in the study area are quartz-sulphide Au ± Cu and carbonate-base metal Au.

**Key Words:** Kulon Progo Volcanoes, Mineralization, Epithermal, Kaligono