

GEOLOGI DAN PETROGENESIS LAVA BANTAL PADA SUNGAI SONG BERDASARKAN PETROLOGI DAN GEOKIMIA ICP-MS DAERAH KALISALAK, KECAMATAN KEBASEN, JAWA TENGAH

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SARI

Keberadaan jalur subduksi menyebabkan karakteristik magmatisme dan vulkanisme yang beragam. Karakteristik tersebut dapat mencerminkan morfologi gunungapi, karakteristik letusan, asosiasi batuan, dan karakteristik kimianya. Lokasi penelitian berada di daerah kalisalak dan sekitarnya, kecamatan kebasen, Jawa tengah. Menurut Asikin (1992), lokasi penelitian terdiri atas Anggota Breksi Formasi Halang yang berumur Miosen Tengah hingga Akhir, Formasi Halang yang berumur Miosen Tengah hingga Pliosen dan Aluvium yang berumur Holosen. Asosiasi batuan yang terdapat pada anggota breksi formasi halang berupa lava basalt, breksi vulkanik, dan batupasir mengindikasikan adanya sistem vulkanik. Berdasarkan survey lapangan, maka batasan masalah dari penelitian ini meliputi kondisi geologi daerah penelitian, petrogenesis lava bantal dan karakteristik geokimianya. Analisis yang dilakukan yaitu dengan analisis petrologi batuan secara megaskopis dan mikroskopis serta analisis geokimia batuan. Metode yang dipilih untuk mengkaji karakteristik geokimia adalah dengan menggunakan ICP-MS (*Inductively Coupled Plasma Mass Spectrometry*) untuk mengetahui kandungan unsur jejak (*trace element*) dan unsur tanah jarang (*Rare Earth Element/REE*). Penggunaan unsur jejak dan REE ialah untuk menentukan afinitas magma serta *setting* tektonik yang bekerja pada saat pembentukan lava bantal. Diagram yang digunakan dalam penentuan afinitas magma yaitu diagram La/Yb vs TREY (REE+Y) (Allegre, 1978). Penentuan *setting* tektonik yang bekerja pada lokasi penelitian menggunakan diagram Nb/Zr vs Th/Zr (after Sun, 2006 modified by Godang, 2016), diagram *normalized multi-trace element* (after Zhang Youxue, 2014 modified from Godang, 2016) dan diagram *normalized REE* (after Zhang Youxue, 2014 modified from Godang, 2016). Berdasarkan kajian geokimia didapatkan hasil berupa afinitas magma pembentukan lava bantal didaerah penelitian berada pada tholeitik hingga transisi dengan *setting* tektonik berada pada *Active Continental Margin (ACM)*.

Kata Kunci : Kebasen, Lava Bantal, ICP-MS, Trace Element, REE, Tholeitik, Active Continental Margin (ACM)

***GEOLOGY AND PETROGENESIS OF PILLOW LAVA ON SONG RIVER
BASED ON PETROLOGY AND GEOCHEMISTRY ICP-MS OF THE
KALISALAK AREA, DISTRICT OF KEBASEN,
CENTRAL JAVA***

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ABSTRACT

The existence of subduction pathways leads to diverse characteristics of magmatism and volcanism. Such characteristics can reflect the volcanic morphology, eruption characteristics, rock associations, and their chemical characteristics. The research location is in the area of kalisalak and its surroundings, kebasen subdistrict, central Java. According to Asikin (1992), the research site consists of Middle to Late Miocene-aged Breccia Members of the Halang Formation, Middle Miocene to Pliocene and Holocene-aged Aluvium. The rock association contained in members of the halang formation breccia is in the form of basalt lava, volcanic breccia, and sandstones indicating the presence of a volcanic system. Based on field surveys, hence the problem limitations of the study include the geological conditions of the research area, the petrogenesis of pillow lava and its geochemical characteristics. Analysis undertaken that is by doing megascopic and microscopic analysis of rock petrology and geochemical analysis of rocks. The method chosen to examine geochemical characteristics is to use ICP-MS (Inductively Coupled Plasma Mass Spectrometry) to know the elemental content of traces (trace elements) and rare earth elements (Rare Earth Element/REE). The use of trace elements and REE is to determine the affinity of magma as well as the tectonic settings that work at the time of the formation of pillow lava. The diagram used in the determination of magma affinity that is La/Yb vs. TREY (REE+Y) diagram (Allegre, 1978). Tectonic setting determination which is working on the research sites is using Nb/Zr vs Th/Zr diagram (after Sun, 2006 modified by Godang, 2016), multi-trace element normalized diagram (after Zhang Youxue, 2014 modified from Godang, 2016) and REE normalized diagram (after Zhang Youxue, 2014 modified from Godang, 2016). Based on geochemical studies obtained results in the form of magma affinity of pillow lava formation in the research area being on tholeiitic until transition with tectonic settings being on the Active Continental Margin (ACM).

Kata Kunci : Kebasen, Pillow Lava, ICP-MS, Trace Element, REE, Tholeitik, Active Continental Margin (ACM)