SARI

Daerah penelitian secara administratif lokasi penelitian berada dalam wilayah izin usaha pertambangan PT. Indomineral Utama Sejahtera, yang terletak di Pulau Mangole, Kabupaten Sula, Provinsi Maluku Utara. Secara geografis lokasi penelitian termasuk ke dalam UTM zona 51 S. Penelitian ini bertujuan untuk mengetahui kondisi geologi dan karakteristik granitoid berdasarkan karakteristik petrografi dan geokimia, serta implikasinya terhadap tatanan tektonik mikrokontinen Banggai Sula dengan melakukan pemetaan geologi di daerah penelitian. Sejumlah analisis dilakukan dalam rangka membantu melakukan interpretasi yaitu diantaranya analisis petrografi, analisis XRF, analisis ICP-MS, dan analisis stereografis. Geomorfologi pada daerah penelitian tersusun dari enam bentuk asal antara lain bentuk asal struktural, vulkanik, denudasional, fluvial, *marine*, dan karst. Bentuk asal struktural terdiri dari perbukitan struktural, gawir garis sesar, dan lereng struktural. Bentuk asal vulkanik terdiri atas bentuk lahan bukit intrusi. Bentuk lahan denudasional terdiri atas perbukitan terdenudasi, dataran bergelombang dan alluvial, dan bukit terisolasi. Bentuk asal fluvial terdiri atas tubuh sungai. Bentuk asal *marine* terdiri atas pantai dan laguna. Sementara bentuk lahan *karst* terdiri atas perbukitan *karst.* Stratigrafi daerah penelitian tersusun atas lima belas satuan batuan yang berurutan dari tua ke muda meliputi satuan *gneiss* Mangole, satuan *slate* Mangole, satuan gabro Mangole, satuan amfibolit Mangole, satuan granit Mangole, satuan diorit Paslal, satuan andesit Paslal, satuan riolit Paslal, satuan tuf Kaporo, satuan batupasir Waisakai, satuan serpih Buruakol, satuan batulempung Buruakol, satuan retas diabas, satuan batugamping Waisakai, dan satuan endapan aluvial dan pantai. Berdasarkan pengamatan lapangan dan penginderaan jauh, struktur geologi daerah penelitian memiliki pola Utara – Selatan, Barat – Timur, Timur Laut – Barat Daya, dan Barat Laut – Tenggara akibat adanya kontrol oleh dua sesar mayor yaitu Sesar Sula Selatan yang berada dibagian selatan Pulau Mangole dan sesar mayor berupa sesar naik yang berada dibagian utara Pulau Mangole. Karakteristik granitoid pada daerah penelitian berdasarkan data geokimia menunjukkan saturasi alumina yaitu peralumina, afinitas magma yaitu *tholeiite, calc-alkali, high-k calc alkali*, dan s*hosonitic*. Tatanan tektonik granitoid Pulau Mangole berada pada tatanan tektonik *volcanic arc* yang diwakili oleh granitoid tipe I dan tipe S, *syn-collision* yang diwakili oleh granitoid tipe S, dan *post-collision* yang diwakili oleh granitoid tipe A.

Kata Kunci: afinitas magma, geomorfologi, granitoid, Pulau Mangole, saturasi alumina, struktur geologi, stratigrafi, tatanan tektonik, tipe granitoid.

ABSTRACT

Administratively, the research area is located in the mining business permit area of PT. Indomineral Utama Sejahtera, which is located on Mangole Island, Sula Regency, North Maluku Province. Geographically, the research location is included in UTM zone 51 S. This study aims to determine the geological conditions and characteristics of granitoids based on petrographic and geochemical characteristics, as well as their implications for the tectonic setting of the Banggai Sula microcontinent by conducting geological mapping in the research area. A number of analyses were carried out in order to assist in the interpretation, including petrographic analysis, XRF analysis, ICP-MS analysis, and stereographic analysis. The geomorphology in the research area consists of six original forms, including structural, volcanic, denudational, fluvial, marine, and karst forms. The structural original form consists of structural hills, fault line scarps, and structural slopes. The volcanic original form consists of intrusive hill landforms. The denudational landform consists of denuded hills, undulating and alluvial plains, and isolated hills. The fluvial original form consists of river bodies. The marine original form consists of beaches and lagoons. Meanwhile, the karst landform consists of karst hills. The stratigraphy of the research area consists of fifteen rock units in sequence from old to young including the Mangole gneiss unit, the Mangole slate unit, the Mangole gabbro unit, the Mangole amphibolite unit, the Mangole granite unit, the Paslal diorite unit, the Paslal andesite unit, the Paslal rhyolite unit, the Kaporo tuff unit, the Waisakai sandstone unit, the Buruakol shale unit, the Buruakol mudstone unit, the diabase hack unit, the Waisakai limestone unit, and the alluvial and coastal deposit units. Based on field observations and remote sensing, the geological structure of the research area has a North-South, West-East, Northeast-Southwest, and Northwest-Southeast pattern due to the control of two major faults, namely the South Sula Fault located in the southern part of Mangole Island and a major fault in the form of a thrust fault located in the northern part of Mangole Island. The characteristics of granitoids in the research area based on geochemical data show alumina saturation, namely peralumina, magma affinity, namely tholeiite, calc-alkaline, high-k calc alkaline, and shosonitic. The tectonic setting of Mangole Island granitoids is in the volcanic arc tectonic setting represented by I type granitoids and S type granitoids, syn-collision represented by S type granitoids, and post-collision represented by A type granitoids.

Keyword**:** *magma affinity, geomorphology, granitoid, Mangole Island, alumina saturation, geological structure, stratigraphy, tectonic setting, granitoid type.*