

## Geochemistry of Ordovician to Silurian Felsic Volcanic from Gerik, Peninsular Malaysia

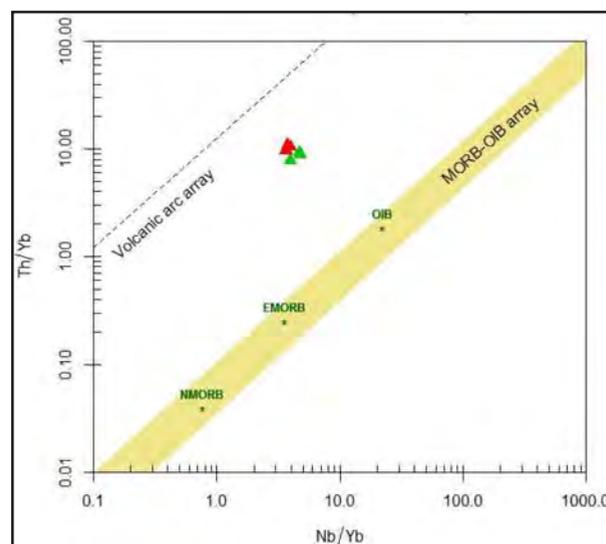
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Ordovician to Lower Silurian (ca. 488 to 450 Ma) volcanic rocks occur as scattered bodies in the Western belt of Peninsular Malaysia. These groups of rock have been neglected in Malaysian geology and no detailed study has been done to investigate the origin, tectonic setting and petrogenesis of the magma. This project revolves around the occurrence of volcanic rocks in Gerik, Perak originating from the Gerik Pyroclastic Member, part of the Baling Formation. The objective of this study is to investigate the petrogenesis and to propose the tectonic setting of the volcanic magma. The volcanic eruption intruded pre-existing slate formation, resulting in the slate as xenolith inclusions in the later-formed rhyolite rock. Petrographic studies exhibit a porphyritic texture along with a flow banding foliation in the volcanic rocks. The phenocrysts phase comprises of quartz, plagioclase, K-feldspar and biotite. Matrix also composed of the same material as the phenocrystic phase. The volcanic rocks also contain abundant of slate rock clasts of various sizes. The clasts size ranges from less than 1 mm to 5 cm in diameter. The volcanic rocks can be classified as rhyolite and trachydacite with  $\text{SiO}_2$  ranging from 64% to 82%. The magma is Al-enriched and plot in the calc-alkaline series.

The rocks here are peraluminous and are from 'S'-type magma, indicated from A/CNK value that exceeds 1 for both rock types (1.09-1.35).

The Western Belt of Peninsula Malaysia represents the Sibumasu Terrane before it collided with Indochina Block to form the Peninsula Malaysia during Late Permian – Mid Triassic time. The Sibumasu Terrane was a part of the eastern Cimmerian continent, believed to be separated from Gondwana margin during Early Permian in an intra-cratonic rifting event. The interaction between the late Proterozoic crust and mantle led to an early Phanerozoic arc-related magmatism along the India-Australian margin of Gondwana. This fits the result from the geotectonic plot of the Gerik Volcanic (Fig. 1) that forms a trend in the volcanic arc array field. The arc-related magmatism generated granitic bodies, derived from the mixture of mantle and Mid-Proterozoic continental crust, and the granitic bodies formed is what believed to form the Cambrian basement. Later in Silurian, an acid explosive volcanism took place at the Cambrian basement, causing the magma to intrude the pre-existing strata in the Sibumasu Terrane and produced the Ordovician to Silurian volcanism.



**Figure 1:** Geotectonic setting of volcanic rocks from Gerik, Perak. Blue and red triangles represent rhyolite and thrchydacite volcanic rocks from Gerik.