

Igneous petrography and geochemistry of the Bukit Payong - Penghulu Diman area, Terengganu

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*The Bt. Payong - Penghulu Diman area, Terengganu consists mainly of metamorphic, gabbroic, granitic, acid and basic hypabyssal rocks and alluvial deposits.*

*The gabbroic rocks in the study area include olivine gabbro and hornblende gabbro. The gabbroic rocks are believed to predate or are almost contemporaneous with the granitic rocks.*

*The granitic rocks in the study area include olivine gabbro and hornblende gabbro. The gabbroic rocks are believed to predate or are almost contemporaneous with the granitic rocks.*

*The granitic rocks in the study area are divided into 4 units, namely:*

1. *Hornblende-biotite granodiorite*
2. *Biotite-hornblende adamellite*
3. *Biotite adamellite*
4. *Pink biotite granite*

*Unit 1 is homogeneous, medium grained, equigranular and is characterised mineralogically by the presence of primary biotite and hornblende. Unit 2 is generally homogeneous, medium to coarse grained, equigranular and is characterised mineralogically by the presence of primary biotite*

and high modal hornblende. Unit 3, is homogeneous, medium grained and is characterised mineralogically by the presence of primary biotite. Unit 4 is homogeneous, medium to coarse grained, equigranular to weakly porphyritic and is characterised mineralogically by the presence of primary biotite and pink alkali feldspar. The granitoids in the area range in age from Permian to Triassic (Bignell and Snelling, 1977, Liew, 1983).

The basic hypabyssal rocks in the area are further divided into 3 main types namely:

1. Porphyritic basaltic dykes
2. Microgabbroic dykes
3. Anorthositic microgabbroic dykes

The basic hypabyssal rocks were dated as Jurassic (Bignell, 1972).

The acidic hypabyssal rock in the area occur as microporphyrritic rhyolitic dykes and is believed to be contemporaneous in age with the basic hypabyssal rocks.

Geochemically the gabbroic rocks fall in the Shoshonite and strongly alkaline regions. The granitoids in the study area, show a calc-alkaline trend and fall within the compositional field of I-type granitoids. The narrow range of D.I. value in the granitoids strongly suggest that the granitoids are derived from a similar magma, differentiated and evolved into different granitoids. The hypabyssal rocks in the study area fall within the calc-alkaline to high calc-alkaline region and high-alumina basalt to sub-alkaline. The hypabyssal rocks could probably be the parental magma for the granitoids in the area.

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