

## The petrography and geochemical signature of granitic body at the vicinity of Berjaya Hill Resorts, Bentong, Pahang

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The study area is a 20km stretch of a ring road climbing up to the hill top and descending to the same entry point, connecting places of interest in the popular resorts. Slightly weathered rocks of Bukit Tinggi Granite which form the eastern plank of the Main Range are exposed along the hilly road cuts. Field observations on 37 localities have shown that the leucocratic rocks are comprised of coarse-grained biotite granite (9), strongly porphyritic biotite granite (19) and weakly porphyritic biotite granite (9), with unclear boundaries. All rocks show some degree of deformation from a number of faults in their vicinity. A total of 41 samples have been collected for petrographic study and 34 of them have been geochemically analyzed. By means of conventional point counting technique for equigranular rocks and integrated field-microscopi point counting technique for strongly porphyritic rocks, the granitic rocks of the study area are divisible into three mineralogical classes, in line with the presently accepted IUGS's scheme. They are quartz-rich granitoid (24), granite (14) and alkali feldspar granite (3). By combining mineralogy and texture, the fina nomenclature for the granitic rocks of the study area are (1) Coarse-grained biotite granite, (2) Medium-grained porphyritic biotite granite, (3) Fine-grained porphyritic biotite granite, (4) Coarse-grained alkali feldspar biotite granite, (5) Fine-grained alkali feldspar biotite granite, (6) Coarse-grained quartz-rich biotite granitoid, and (7) Medium-grained porphyritic quartz-rich biotite granitoid. The average chemical compositions of 36 samples determined by X-ray fluorescenc technique (XRF) are: SiO<sub>2</sub> 66.48, TiO<sub>2</sub> 0.33, Fe<sub>2</sub>O<sub>3</sub> 3.37, MnO 0.03, MgO 0.04, CaO 1.27 and P<sub>2</sub>O<sub>5</sub> 0.08, in weight percentage; and As 18, Ba 147, Co 33, Cr 7, Ni 89, Rb 722, Sr 81, V 20, Zn 85 and Zr 396, in µg/g. The Berjaya Hill plutonic body shows rather narrow range of SiO<sub>2</sub>, i.e. 57.78 – 74.01%, indicating its origin from intermediate to typical acidic magma. The rather strong negative correlations shown by SiO<sub>2</sub>-TiO<sub>2</sub>, SiO<sub>2</sub>-Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>-MnO and SiO<sub>2</sub>-CaO suggest that the seven rock types crystallized from the same parent magma of intermediate-acidic composition through magmatic evolution, most possibly fractional crystallization. Some trace elements are depleted as the evolution progresses (e.g. Ba, Sr, V), while Rb and As have undergone enrichment.