

## The petrography and geochemical signature of granitic body along the Kajang – Sungai Long Silk Highway, Hulu Langat, Selangor

SITI NURFARHANA BT MOHAMED ZAID<sup>1</sup> & HAMZAH MOHAMAD<sup>2</sup>

<sup>1</sup>Universiti Teknologi PETRONAS, Bandar Seri Iskandar, 31750 Tronoh, Perak

<sup>2</sup>Program Geologi, Fakulti Sains dan Teknologi, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Selangor

The study area is a 4.1 km stretch of Kajang Silk Highway, starting from km 16.4 (Kajang Perdana Exchange) towards Sungai Long exit. The moderately undulating hills making up the southern part of the Main Range expose continuous road cuts at five localities (L1 to L5), intermitted by low lying areas barren of outcrops. A total of 50 fresh granitic samples, 10 from each road cuts have been collected for petrographic study and 36 of them have been geochemically analyzed. Field observations have shown that the leucocratic rocks are comprised of coarse-grained biotite granite, medium-grained biotite granite, coarse-grained two-mica granite, and medium-grained two-mica granite. By means of conventional point counting technique for medium-grained rocks and integrated field-microscopi point counting technique for coarse-grained rocks on 41 samples, the granitic rocks of the study area are divisible into three mineralogical classes, in accordance with presently accepted IUGS's scheme. They are quartz-rich granitoid (8 sample, dominating L4 outcrops), granodiorite (25 sample; L1, L2 and L3 outcrops), and granite (8 sample, confine to Loc 5 outcrops). By combining mineralogy and texture, the final nomenclature for the granitic rocks of the study area are (1) Medium-grained quartz-rich biotite granitoid, (2) Medium-grained biotite granite, (3) Medium-grained two-mica granite, (4) Coarse-grained biotite granodiorite, and (5) Coarse-grained two-mica granodiorite. The average chemical compositions of the 36 samples determined by X-ray fluorescence technique (XRF) are: SiO<sub>2</sub> 78.07, TiO<sub>2</sub> 0.31, Al<sub>2</sub>O<sub>3</sub> 14.12, Fe<sub>2</sub>O<sub>3</sub> 1.39, MnO 0.06 and CaO 1.58, in weight percentage; and As 15, Ba 73, Co 34, Cr 13, Ni 86, Rb 883, Sr 69, V 3, Zn 97 and Zr 166, in µg/g. The studied plutonic body shows rather wide range of SiO<sub>2</sub>, i.e. 71.78 – 86.69%, indicating its origin from moderate to highly 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 and a positive SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> correlation suggest that the five rock types originated from the same parent acidic magma through magmatic evolution, most possibly through fractional crystallization. Some trace elements are depleted as the evolution progresses (e.g. Ba, Rb, Ni), while others have undergone enrichment (e.g. Sr, As).