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**THE IGNEOUS ROCKS OF THE KUALA KERAI-MANEK URAI AREA,  
KELANTAN: PETROLOGICAL AND GEOCHEMICAL ASPECTS**

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The area stretching from Kuala Kerai in the north (demarcated by Sg. Durian) and Manek Urai to the south (demarcated by Sg. Rek) and bordered on the west by Sg. Lebir and the east by the Boundary Range hosts a broad spectrum of igneous rocks which range from acidic, through intermediate, basic and ultrabasic and pyroclastic rocks based on their mineralogical, chemical and textural variations.

The acidic rocks comprise at least 9 different rocks types, either as plutonic rocks or their volcanic equivalents. The dominant ones being granodiorite, biotite adamellite, hornblende-biotite adamellite, hornblende-biotite tonalite, porphyritic pink granite, rhyolite and biotite granite porphyry.

The intermediate rocks include hornblende diorite, biotite-quartz diorite, biotite diorite and pyroxene andesite. The basic rocks are mainly hornblende pyroxene basalt while pyroxenite is the ultrabasic rock. Pyroclastic rocks include welded tuff and crystal tuff.

Late phase phenomena as minor intrusions include dolerite dykes, hornblende basalt dykes, microgranite and graphic granite.

Systematic mineralogical and textural variations of the various igneous rocks in the area coupled with their spatial proximity indicate a petrogenetic link between them. Preliminary geochemical data demonstrate that these various rock types probably represent a differentiated series from a single parental magma. The geochemistry of the rocks show a calc-alkaline trend with increasing differentiation that includes enrichment in  $\text{SiO}_2$  and alkalis and the depletion in  $\text{CaO}$ ,  $\text{MgO}$  and  $\text{Fe}_2\text{O}_3$ .