

STONG COMPLEX: NEW APPROACH USING GEOCHEMICAL DATA OF TRACE ELEMENTS TO REASSESSMENT THE PETROGENESIS

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Synopsis: This appraisal study on the Stong Complex was carried out to eliminate some uncertainties about its petrogenetic interpretation as suggested by Singh et al. (1984), due to lack of sufficient data. The petrogenetic interpretation of Stong Complex by the previous authors was based entirely on field and petrographic data. Geochemical data, particularly on trace and rare earth elements (REE) are lacking. Field study showed that the term Stong Complex as a stratigraphic unit as introduced by Singh et al. (1984) is inaccurate. This result of the study indicated that the term Stong Suite is preferable (Mohd Rozi and Hamzah Mohamad, 2001). Consequently, the Berangkat Tonalite, Noring Granite and Kenerong Leucogranite are considered as lithodemic units. Singh et al. (1984) also suggested the following order of relative ages: Berangkat Tonalite, Kenerong Leucogranite and Noring Granite. The order contradicts to the present finding by absolute ages as follows: Berangkat Tonalite (Middle Cretaceous ?), Noring Granite (Upper Cretaceous, 93.18 ± 1.84 Ma) and Kenerong Leocogranite (Upper Cretaceous, 88.75 ± 1.75 Ma). Geochemical study has suggested that the Stong Suite is a paraaluminous body of K-rich calc-alkaline series. It depicts magmatic origin, perhaps from the mantle, based on its I-type nature (Ramdanshah Bacho and Mohd Rozi Umor, 2001; Nur Huda Mohd Jamin and Mohd Rozi Umor, 2001). The history of formation of the rocks within the Stong Suite is interpreted from their REE's trends. The trends suggested the comagmatic nature of Berangkat Tonalite, Noring Granite and Kenerong Leucogranite. The magma has undergone continuous differentiation, leading to the formation of Berangkat Tonalite, which has undergone partial melting, giving rise to Noring Granite. The rocks of Noring Granite have been partially melted, followed by recrystallization to Kenerong Leucogranite. During the emplacement of Kenerong Leocogranite, the contamination due to assimilation by the country rocks is widespread. This is so because the shallower seated nature of the emplacement, as compared to Berangkat Tonalite and Noring Granite. The Kenerong Leucogranite magma has injected into the country rocks through their bedding planes and the country rocks were metamorphosed to some extent. The metamorphism is further enhanced by the regional deformation following the Stong Suite intrusion (Mohd Rozi Umor dan Hamzah Mohamad, 2002).