

UNIVERSITI TEKNOLOGI MARA

**ANALYSIS OF Y-STR
POLYMORPHISM AMONG TEMIAR
SUB-TRIBE OF *ORANG ASLI* IN
KELANTAN**

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Dissertation submitted in partial fulfilment
of the requirements for the degree of
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CONFIRMATION BY PANEL OF EXAMINERS

I certify that a Panel of Examiners has met on 26th January 2016 to conduct the final examination of Marlia binti Marzukhi on his Master of Science thesis entitled “Analysis of Y-STR Polymorphism among Temiar Sub-tribe of *Orang Asli* in Kelantan” in accordance with Universiti Teknologi MARA Act 1976 (Akta 173). The Panel of Examiners recommends that the student be awarded the relevant degree. The panel of Examiners was as follows:

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ABSTRACT

Orang Asli is the Bumiputera group that can be found in Peninsular Malaysia and they are divided into three main sub-tribes namely Senoi, Proto-Malay and Negrito. Each tribe are further divided into various sub-tribes based on their physical appearance, culture and settlement. Temiar is one of the Senoi sub-tribes that can be found mostly in Perak, Pahang and Kelantan. The study on analysis of Y-STR polymorphism among Temiar sub-tribe of *Orang Asli* in Kelantan was done to determine the genetic characteristic that occur in the Temiar population using five Y-STR loci; DYS385a/b, DYS389I/II, and DYS393. Fifty buccal swab samples of unrelated male individuals from the Temiar sub-tribes from two villages in Kelantan were analyzed using the selected markers and PCR amplifications. The allelic frequency, gene diversity, haplotype diversity, locus diversity and discrimination capacity were calculated for the selected markers. The overall haplotype diversity for the five Y-STR tested was 0.902 (SE \pm 0.015) and the discrimination capacity was 0.400. The Y-TSR analysis for the different villages showed that more genetic variations occurred in Kg Hendrop compared to Kg Tuel. The haplotype diversity for the five Y-STR tested for Kg Tuel and Kg Hendrop were 0.883 (SE \pm 0.029) and 0.954 (SE \pm 0.029) respectively. The discrimination capacity for Kg Tuel and Kg Hendrop were 0.375 and 0.677 respectively. More haplotypes were observed in Kg Hendrop compared to Kg Tuel although the size of the population in Kg Tuel was larger than that of Kg Hendrop. The single locus diversity ranged from the highest in DYS385a/b to the lowest in DYS393 with the values of 0.915 (SE \pm 0.038) and 0.232 (SE \pm 0.054) respectively. AMOVA and PCoA analysis showed a small variation which occurred between the two Temiar's populations suggesting that the geographic factor has limited impact on genetic differentiation. The findings from this study will contribute to the information on the Temiar sub-tribe in Kelantan based on Y-STR polymorphism in the database of the Malaysian sub-ethnic group. This study will also be useful as inclusion or exclusion factors in forensic applications.

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