

**ALLELE FREQUENCY DISTRIBUTION USING NINE POLYMORPHIC STR
LOCI IN A FILIPINO POPULATION: APPLICATION IN PATERNITY TESTING**

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BACKGROUND: Short tandem repeat typing by polymerase chain reaction is regarded today as the most powerful tool for human identification. This, however, requires a population database for the test to be validated.

OBJECTIVE: To determine the allelic frequency distribution of nine polymorphic STR loci in 169 unrelated Filipinos in paternity investigating cases at St. Luke's Medical Center; and to establish a population database for Filipinos, which can be used in forensic applications.

METHODS: The allelic and genotypic frequencies at the nine polymorphic STR loci were determined in a sample of 169 unrelated Filipinos. Their DNA were extracted and amplified. The PCR products were detected by Silver Staining method. The resulting allelic and genotypic frequencies were statistically analysed for its forensic and paternity investigation significance.

RESULTS: All loci, except the locus F13A01, did not show deviation from the Hardy-Weinberg equilibrium. The most frequently observed genotype were 10-12 (f=0.183) for SCF1PO, 7-9 (f=0.216 for TH01, 8-11 (f=0.319) for TPOX, 6-6 (f=0.296) for F13A01, 11-12 (f=0.266 for FES/FPS, 17-18 (f=0.112) for vWA, 9-11 (f=0.296) for D16S539, 11-11 (f=0.124) D13S317, and 8-11 (f=0.160 for D7S820. PI=759.26; pM= 3.6×10^9 ; PE=0.999804; Pd=0.99999999638.

CONCLUSION: A population database that conforms to the Hardy-Weinberg equilibrium and discounts the possibility of inbreeding has been generated. One can only find a DNA profile match after looking at DNA profiles of more than 277 million individuals using the 9 STR loci. TH01, however, is a weak genetic marker for DNA analysis in the Filipino population. Nevertheless, TH01 can add to the odds that one can find the same DNA profile in a population.