



STUDY OF AUTOSOMAL STR MARKERS IN UNITED ARAB EMIRATES POPULATION

Mohammed Naji

United Arab Emirates University, United Arab Emirates

Abstract:

A study of the United Arab Emirates (UAE) population is important due to high consanguineous marriage, which may affect the power of discrimination of some loci. The genetic polymorphisms of 23 autosomal short tandem repeat (STR) loci including D3S1358, vWA, D16S539, CSF1PO, TPOX, D8S1179, D21S11, D18S51, D2S441, D19S433, TH01, FGA, D22S1045, D5S818, D13S317, D7S820, D10S1248, D1S1656, D12S391, D2S1338, D6S1043, Penta D and Penta E were evaluated in 571 random unrelated UAE Arabs population. Blood samples were collected on FTA cards. Targeted loci were amplified using Verifiler Express PCR Amplification Kit. PCR products were run on the ABI 3500 Genetic analyzer. Arlequin and Forstater softwares were used to determine the forensic parameters and population structure analysis for 23 autosomal STRs. A total of 305 alleles were observed with the corresponding allelic frequencies ranging between 0.000876 and 0.49387. Data of forensic statistical parameters such as locus diversity ranged from 0.67406 (TPOX) to 0.9149 (Penta E). The most variable autosomal STR loci observed was Penta E (observed heterozygosity: 0.90368, match probability: 0.0147). Results suggest that the 23 STR loci had a relatively high genetic variation, which was suitable for forensic personal identification and paternity testing in the UAE population. The significance of this work is to build an allelic frequency database for the latest and most powerful amplification kit using current forensic workflow aiding statistical evaluation of generated STR profiles in the corresponding populations.

Biography:

Mohammed Naji Mohammed is a Senior Molecular Biologist at Forensic Department Dubai Police and his expertise in solving complex cases related to molecular biology. His recent projects focus about study different STR Markers in different populations and how can use these markers in Forensic Science. He considers the first scientist who studied these types of autosomal loci in Arab World. He was invited from different universities to present lectures about these STR Markers. He



received ratings badges from Commander of Dubai police about his efforts in Forensic Science. He also participated as Scientific judges in different competitions related to Molecular Biology Science.

Publication of speakers:

- Alsafiah, H. M., Goodwin, W. H., Hadi, S., Alshaikhi, M. A., & Wepeba, P.-P. (2017). Population genetic data for 21 autosomal STR loci for the Saudi Arabian population using the GlobalFiler® PCR amplification kit. *Forensic Science International: Genetics*, 31, e59-e61.
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- Khubrani, Y. M., Wetton, J. H., & Jobling, M. A. (2019). Analysis of 21 autosomal STRs in Saudi Arabia reveals population structure and the influence of consanguinity. *Forensic Science International: Genetics*, 39, 97-102.
- Hadi, I., Abdullah, M., Jaber, A., & Yoke, C. (2014). Genetic variation of twenty autosomal STR loci and evaluate the importance of these loci for forensic genetic purposes. *African Journal of Biotechnology*, 13(11), 1-9.

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