Manipal Alumni Science and Health Journal 2025; 10(2): Special Edition
5th International Conference on Bioengineering for Health and Environment

PSV-09

Investigation of Paternity Testing for Six Iraqi Families with Missing Fathers using Sanger Sequencing

Israa AbdulSattar Ali[1], Faridah Mohd Nor [2], Nur Najmi Mohamad Anuar[1], Dhuha Salim Namaa [3], Siti Fathiah Masre[1*]

[1]Centre for Toxicology and Health Risk Studies, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia.

[2]Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia.

[3]Higher Institute of Forensic Sciences, Al-Nahrain University, Baghdad, Iraq.

Paternity testing, also known as kinship analysis, is a crucial application of forensic DNA typing used in various scenarios, including paternity testing, immigration applications, and as a form of indirect identification for missing persons. A genetic test may be required to provide evidence of paternity or maternity, most commonly for civil or family court cases. This study aims to confirm the paternity relationship between the concerned child and their family in cases of missing fathers in Iraq, using the Sanger sequence. 120 samples were collected from six missing father cases. Each case consists of three relatives of the missing father (grandparents, uncle, and aunts) with the mother and child in question. The DNA was extracted from 2 ml of whole blood using the Qiagen Kit. PCR processes were performed using specific primers for D18S, TPOX, CSF, and FGA genes. The Sanger sequence was performed on the amplified PCR fragments using an ABI3730XL automated DNA sequencer. The findings revealed a match between the relatives' DNA sequence and the child, which was manually determined. This investigation was able to effectively employ Sanger sequencing to address the urgent need to establish paternity between six missing Iraqi fathers and their families. The high accuracy and reliability of Sanger sequencing enabled the definitive exclusion or inclusion of potential paternal relationships, thereby providing significant clarity to the families involved.

Keywords: Paternity analysis, Missing father cases, Sanger sequence

***Correspondence:** Siti Fathiah Masre
sitifathiah@ukm.edu.my