EVALUATION OF FORENSIC EFFICIENCY PARAMETERS OF SHORT TANDEM REPEAT (STR) DNA MARKERS IN SARAIKI POPULATION OF PAKISTAN

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Genetic parameters for forensic application of 15 autosomal short tandem repeat (STR) DNA markers (D8S1179, D21S11, D7S820, CSF1PO, D3S1358, THO1, D13S317, D16S539, D2S1338, D19S433, vWA, TPOX, D18S51, D5S818 and FGA) were evaluated from a randomly selected sample of 150 unrelated Saraiki individuals of Pakistan. The loci D8S1179, D21S11, D7S820, D3S1358, D13S317, D19S433, vWA, D18S51 and FGA were found to be highly polymorphic with observed heterozygosity > 70%,while D16S539,CSF1PO, D7S820,D5S818 were moderately polymorphic with observed heterozygosity > 60%.THO1 and TPOX were least polymorphic with observed heterozygosity 50 and 33.3%, respectively. The locus D2S1338 was found to be the most discriminating STR marker followed by FGA, D18S51, D8S1179 and vWA while TPOX and THO1 showed least power of discrimination. Highest polymorphism information content (PIC) value was observed in case of D2S1338 followed by FGA, D18S51, D8S1179, vWA while it was lowest for TPOX and THO1. The loci D2S1338 showed maximum paternity index (PI) followed D8S1179, D19S433,vWA, while minimum value was observed for THO1 and TPOX. Matching probability of TPOX was more than any other loci. Thus the forensic efficiency parameters evaluated in this study would help to establish a reference database of Saraiki population for forensic DNA case work in Pakistan.