

EVALUATION OF POWERPLEX ESI 17® AMPLIFICATION KIT IN A ADMIXED HISPANO-AMERINDIAN POPULATION SAMPLE OF VALPARAÍSO, CHILE

Manríquez J¹, Rojas S¹, Yáñez MO², Molina G¹

¹Unidad de Genética Forense, Servicio Médico Legal de Valparaíso, Valparaíso, Chile

²Instituto de Química, Facultad de Ciencias, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile

The PowerPlex ESI 17® (PP17) amplification Kit was designed for European population (ENFSI and EDNAP recommendations). Routinely, DNA testing in our population was performed using the AmpFℓSTR® Identifiler® PCR Amplification kit (ID), that includes the 13 CODIS loci (FBI recommendations). Our population is an admixture between Hispanic and Amerindians. To evaluate the usefulness of the loci included in PP17 we analyzed 150 unrelated individuals' samples obtained with previous informed consent for paternity testing. The sample size was calculated according to Chakraborty (1992) to obtain frequencies higher than 0.1 ($\alpha=0.95$). The DNA extraction was performed and the STR *loci* was PCR amplified using PP17 and ID amplification kits. Allelic, genotypic frequencies, Power of exclusion (PE) and Match Probability (MP) were calculated using PowerStat v1.2 software (Promega). The SE33 *loci* MP was the lowest (2.20×10^{-2}) and the PE (0.788) was the third highest. The other 5 new loci (D10S1248, D22S1045, D2S441, D12S391 and D1S1653) have similar informativeness than CODIS loci. The combined MP and PE for PP17 were 3.71×10^{-19} and 0.9999998 respectively, while for ID the parameters were 5.93×10^{-17} and 0,9999993. This study showed a high percentage of heterozygosity in PP17® *loci* in the population studied, despite being designed for European population. In conclusion, the use of the PP17 system has better informativeness than ID. The combined use of these two systems could resolve complex DNA testing, where ID alone is not sufficient to get a strong conclusion.