GENETIC DATA OF 10 X-CHROMOSOMAL LOCI IN VITÓRIA CITY POPULATION (ESPÍRITO SANTO STATE, BRAZIL)

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X-chromosome STR analysis has become of increasing interest in forensic practice, especially in complex cases of kinship. Brazilian genetic data on autosomal and Y-chromosome STRs are already present in the literature, but regarding X-STRs, few studies have been published in Brazil to date. The present work investigated 10 X-STRs (DXS8378, DXS9898, DXS7133, GATA31E08, GATA172D05, DXS7423, DXS6809, DXS7132, DXS9902 and DXS6789) in a sample of 224 unrelated individuals belonging to Vitória (Espírito Santo State, Brazil). Peripheral blood was collected in FTA cards and DNA was extracted using FTA protocols. Amplification was performed in a single PCR multiplex reaction as proposed by Gusmão et al. in the GEP-ISFG collaborative study. The Hardy-Weinberg equilibrium (HWE) was examined using the exact test with Arlequin software; the mean exclusion chance of trios involving daughters (MEC_T) as well as in father/daughter duos (MEC_D) and power of discrimination in females (PD_F) and in males (PD_M) were computed as proposed by Desmarais et al. Allele frequencies between men and women samples were not significantly different. For a significance level of 0.005 (after Bonferroni's correction) no deviations from the Hardy–Weinberg equilibrium were observed. DXS7423 was the least polymorphic marker whereas the most diverse was DXS6809. Power of discrimination in females ranged from 0.952 (DXS6809) to 0.837 (DXS8378/DXS7423) and in males ranged from 0.831 (DXS6809) to 0.676 (DXS7423). The combined MEC_D, MEC_T, PD_F and PD_M were 0.99988233, 0.99999778, 0.99999999996 and 0.9999995, respectively. The 10 X-STRs analyzed constitute a powerful tool for human identification purposes in Vitória city population, Brazil.

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