**Table 1.** Allele frequency data for 17 non-CODIS STR loci for the Saudi Arabian population generated using the SureID®23comp Human Identification Kit. The same sample set was genotyped using the GlobalFiler ® PCR amplification kit and the allele frequency data of D1S1656, D2S441, D10S1248, D12S391, D16S539 STRs is published in [4]. The Table also shows the common forensic parameters estimated using PowerStat v 1.2 (Promega Promega Corporation). It also shows the expected heterozygosity and *P* values of the exact test for detecting deviation from the HWE for each STR. 14/17 STRs showed fewer than expected heterozygotes and D9S1122, D4S2366 and D8S1132 were the exception (shaded cells). Combined Match Probability (CMP), Combined Power of Exclusion (CPE) and Combined Power of Discrimination (CPD) are also shown.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **allele** | **D18S1364** | **D13S325** | **D5S2800** | **D9S1122** | **D4S2366** | **D3S1744** | **D11S2368** | **D21S2055** | **D20S482** | **D8S1132** | **D7S3048** | **D19S253** | **D17S1301** | **D22GATA198B05** | **D6S474** | **D14S1434** | **D15S659** |
| **6** |  |  |  |  |  |  |  |  |  |  |  | 0.004 |  |  |  |  | 0.001 |
| **7** |  |  |  | 0.001 |  |  |  |  |  |  |  | 0.222 |  |  |  |  | 0.003 |
| **8** |  |  |  |  |  |  |  |  |  |  |  | 0.018 |  |  |  |  |  |
| **9** |  |  |  | 0.008 | 0.299 |  |  |  | 0.01 |  |  | 0.009 | 0.001 |  |  | 0.001 | 0.006 |
| **10** |  |  |  | 0.054 | 0.107 |  |  |  | 0.004 |  |  | 0.018 | 0.042 |  | 0.001 | 0.29 | 0.037 |
| **11** | 0.001 |  |  | 0.237 | 0.172 |  |  |  | 0.007 |  |  | 0.147 | 0.292 |  |  | 0.036 | 0.222 |
| **11.2** |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.001 |  |  |  |
| **12** | 0.045 |  |  | 0.405 | 0.243 | 0.001 |  |  | 0.039 |  |  | 0.353 | 0.449 | 0.004 |  | 0.018 | 0.163 |
| **13** | 0.247 |  | 0.021 | 0.256 | 0.106 | 0.008 |  |  | 0.222 |  |  | 0.16 | 0.188 |  | 0.002 | 0.261 | 0.059 |
| **13.1** |  |  |  |  |  |  |  |  |  | 0.001 |  |  |  |  |  |  |  |
| **14** | 0.142 |  | 0.238 | 0.031 | 0.066 | 0.117 | 0.001 |  | 0.477 |  |  | 0.061 | 0.023 | 0.01 | 0.345 | 0.384 | 0.037 |
| **15** | 0.185 |  | 0.003 | 0.007 | 0.005 | 0.079 | 0.002 |  | 0.186 | 0.003 |  | 0.007 | 0.005 | 0.011 | 0.244 | 0.006 | 0.207 |
| **16** | 0.126 | 0.004 | 0.001 | 0.001 | 0.002 | 0.133 | 0.016 |  | 0.052 | 0.016 | 0.003 | 0.001 |  | 0.131 | 0.214 | 0.004 | 0.18 |
| **16.1** |  |  |  |  |  |  |  | 0.082 |  |  |  |  |  |  |  |  |  |
| **17** | 0.043 | 0.012 | 0.239 |  |  | 0.34 | 0.048 |  | 0.003 | 0.138 | 0.068 |  |  | 0.188 | 0.143 |  | 0.061 |
| **17.1** |  |  |  |  |  |  |  | 0.013 |  |  |  |  |  |  |  |  |  |
| **18** | 0.143 | 0.045 | 0.28 |  |  | 0.167 | 0.143 |  |  | 0.211 | 0.091 |  |  | 0.099 | 0.039 |  | 0.021 |
| **18.1** |  |  |  |  |  |  |  | 0.013 |  |  |  |  |  |  |  |  |  |
| **19** | 0.062 | 0.167 | 0.006 |  |  | 0.096 | 0.241 |  |  | 0.2 | 0.061 |  |  | 0.244 | 0.012 |  | 0.003 |
| **19.1** |  |  |  |  |  |  |  | 0.108 |  |  |  |  |  |  |  |  |  |
| **20** | 0.006 | 0.308 | 0.025 |  |  | 0.045 | 0.266 |  |  | 0.124 | 0.075 |  |  | 0.153 |  |  |  |
| **20.1** |  |  |  |  |  |  |  | 0.01 |  |  |  |  |  |  |  |  |  |
| **21** |  | 0.231 |  |  |  | 0.012 | 0.206 |  |  | 0.105 | 0.106 |  |  | 0.11 |  |  |  |
| **22** |  | 0.141 | 0.003 |  |  | 0.002 | 0.059 |  |  | 0.106 | 0.086 |  |  | 0.044 |  |  |  |
| **23** |  | 0.071 | 0.165 |  |  |  | 0.016 | 0.001 |  | 0.069 | 0.186 |  |  | 0.005 |  |  |  |
| **24** |  | 0.017 | 0.019 |  |  |  | 0.002 | 0.026 |  | 0.023 | 0.181 |  |  |  |  |  |  |
| **25** |  | 0.001 |  |  |  |  |  | 0.131 |  | 0.004 | 0.098 |  |  |  |  |  |  |
| **26** |  |  |  |  |  |  |  | 0.121 |  |  | 0.037 |  |  |  |  |  |  |
| **26.3** |  | 0.002 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **27** |  |  |  |  |  |  |  | 0.014 |  |  | 0.006 |  |  |  |  |  |  |
| **27.3** |  | 0.001 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **28** |  |  |  |  |  |  |  | 0.012 |  |  | 0.001 |  |  |  |  |  |  |
| **29** |  |  |  |  |  |  |  | 0.056 |  |  |  |  |  |  |  |  |  |
| **30** |  |  |  |  |  |  |  | 0.032 |  |  | 0.001 |  |  |  |  |  |  |
| **31** |  |  |  |  |  |  |  | 0.041 |  |  |  |  |  |  |  |  |  |
| **32** |  |  |  |  |  |  |  | 0.102 |  |  |  |  |  |  |  |  |  |
| **33** |  |  |  |  |  |  |  | 0.124 |  |  |  |  |  |  |  |  |  |
| **34** |  |  |  |  |  |  |  | 0.07 |  |  |  |  |  |  |  |  |  |
| **35** |  |  |  |  |  |  |  | 0.034 |  |  |  |  |  |  |  |  |  |
| **36** |  |  |  |  |  |  |  | 0.008 |  |  |  |  |  |  |  |  |  |
| **37** |  |  |  |  |  |  |  | 0.002 |  |  |  |  |  |  |  |  |  |
| Total Alleles | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Matching Probability | 0.046 | 0.07 | 0.079 | 0.141 | 0.076 | 0.06 | 0.068 | 0.016 | 0.143 | 0.041 | 0.027 | 0.083 | 0.162 | 0.045 | 0.102 | 0.148 | 0.046 |
| Expressed as 1 in | 21.868 | 14.346 | 12.579 | 7.093 | 13.176 | 16.611 | 14.685 | 61.516 | 6.992 | 24.424 | 36.464 | 12.068 | 6.156 | 22.385 | 9.8 | 6.748 | 21.686 |
| Power of Discrimination | 0.954 | 0.93 | 0.921 | 0.859 | 0.924 | 0.94 | 0.932 | 0.984 | 0.857 | 0.959 | 0.973 | 0.917 | 0.838 | 0.955 | 0.898 | 0.852 | 0.954 |
| Polymorphic Information Content | 0.821 | 0.768 | 0.744 | 0.661 | 0.765 | 0.785 | 0.773 | 0.904 | 0.641 | 0.836 | 0.869 | 0.743 | 0.619 | 0.821 | 0.713 | 0.641 | 0.818 |
| Power of Exclusion | 0.629 | 0.538 | 0.47 | 0.466 | 0.637 | 0.517 | 0.541 | 0.775 | 0.321 | 0.735 | 0.695 | 0.552 | 0.372 | 0.61 | 0.466 | 0.422 | 0.61 |
| Typical Paternity Index | 2.717 | 2.137 | 1.825 | 1.812 | 2.778 | 2.033 | 2.155 | 4.545 | 1.33 | 3.846 | 3.333 | 2.212 | 1.479 | 2.577 | 1.812 | 1.645 | 2.577 |
| Observed Heterozygosity | 0.816 | 0.766 | 0.726 | 0.724 | 0.818 | 0.754 | 0.77 | 0.888 | 0.628 | 0.87 | 0.848 | 0.774 | 0.662 | 0.806 | 0.726 | 0.698 | 0.802 |
| HWE  | Expected Heterozygosity | 0.84136 | 0.79728 | 0.77991 | 0.71099 | 0.7953 | 0.80825 | 0.80282 | 0.91181 | 0.6915 | 0.85408 | 0.88177 | 0.77516 | 0.67583 | 0.84142 | 0.75407 | 0.69978 | 0.83976 |
| Exact test *P* value | 0.56136 | 0.39205 | 0.11518 | 0.05367 | 0.25306 | 0.23985 | 0.16433 | 0.16668 | 0 | 0.21807 | 0.48789 | 0.88958 | 0.18288 | 0.33665 | 0.11216 | 0.13021 | 0.34694 |
| Standard Deviation | 0.00041 | 0.00043 | 0.00028 | 0.00021 | 0.00036 | 0.0003 | 0.00025 | 0.00024 | 0 | 0.00028 | 0.0003 | 0.00022 | 0.00038 | 0.00044 | 0.00029 | 0.0003 | 0.00048 |
| Steps done | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 | 1001000 |
| Combined Match Probability (CMP) | 1.2E-20E-20 |
| **Combined Power of Exclusion (CPE)** | 0.9999747848 |
| **Combined Power of Discrimination (CPD)** | 0.999999999999999999988164 |