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FOR THE RECORD

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A Study on Polymorphism at Short Tandem Repeat (STR) Loci D16S539, D7S820 and D13S317 in the Bharias, a Primitive Indian Tribal Population from Patalkot, India

POPULATION: Bharias a primitive Indian tribe ($n = 19$).

KEYWORDS: forensic science, DNA typing, population genetics, Bharias, primitive Indian tribe, polymorphism, STR, D16S539, D7S820, D13S317, allele frequencies

Allele distribution studies was carried out in "Bharias" from the central part of the Indian subcontinent. "Bharias" are one of the classified primitive Indians. They are located in the Chhindwara district of Madhya Pradesh, at "Patal Kot" that is situated amidst dense forests surrounded by high hills of "Satpura ranges" lies between 22°-24′ and 22°-29′ north latitude and 78°-43′ and 78°-50′ east longitude. "Patalkot" is a bowl-shaped formation on the Satpura hills surrounded on three sides by hill ridges like a straight wall thus making "Patalkot" almost inaccessible. The estimated total area of Patalkot is about 79 sq. kms. The highest contours of the area are 3750 ft above sea level. The total population of "Bharias" comprises 2012 members belonging to 238 families, inhabited in 12 small villages, distributed in 23 hamlets (1,2). The different villages within "Patalkot" located at different altitudes ranged from 1950 to 3050 ft.

Nineteen specimens from unrelated volunteer blood donors were analyzed. DNA was obtained from blood specimens using "QIAamp Blood and Tissue kit" (QIAGEN GmbH, Hilden, Germany) according to the manufacturer's recommended protocol. Amplification of D16S539, D7S820 and D13S317 STR loci was carried out by using "Gene Print™ Silver STR III™ System" (Promega Corporation, Madison, WI) in a "Gene Amp® PCR system 2400" thermal cycler (Perkin Elmer Corporation, CA) using 5 ng target DNA according to the manufacturer's recommended protocol. Amplified multiplex products were separated by electrophoresis in 6% polyacrylamide denaturing gel following "Technical Manual Gene Print™STR System (Silver Stain Detection)" (Promega Corporation, Madison, WI). Electrophoresis was carried out in a "SQ3 Manual Sequencing Gel Electrophoresis apparatus" (Pharmacia Biotech AB, San Francisco, CA). Detection of the STR locus D16S539, D7S820 and D13S317 was performed by "Silver Sequence™ DNA Silver Staining System" Kit (Promega Corporation, Madison, WI). In D16S539 locus out of 9 alleles, 5 alleles namely 9,10,11,12,13 were found to be present and 4 alleles namely 5,8,14,15 were absent in the population (Table 1). In D7S820 locus out of 9 alleles, 6 alleles namely 8,9,10,11,12,13 were found to be present and 3 alleles namely 6,7 and 14 were absent in the population (Table 1). In D13S317 locus out of 9 alleles, 6 alleles namely 7,8,9,10,11,12 were found to be present and 3 alleles namely 13,14,15 were absent in the population (Table 1).

Allele frequencies were estimated using standard counting procedures (Table 1). The D16S539, D7S820 and D13S317 locus was tested for Hardy-Weinberg equilibrium by the chi-square tests (χ^2) throughout.

The complete dataset is available to any interested researcher upon request.

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TABLE 1—*STR allele frequency data for Bharia population (*n *= 19).*

Allele	D16S539	D7S820	D13S317
5	0.0000	…	…
6	…	0.0000	…
7	…	0.0000	0.0263
8	0.0000	0.2368	0.1842
9	0.0263	0.0526	0.1053
10	0.1316	0.3158	0.0526
11	0.4737	0.2895	0.2895
12	0.2368	0.0526	0.3421
13	0.1316	0.0526	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	…	0.0000
Expected Homozygosity	0.31579	0.24792	0.24926
Observed Homozygosity	0.26315	0.15789	0.26316
χ^2	0.08771	0.03269	0.00077
P (for 1 d.f.)	0.90>*P*>0.75	0.90>*P*>0.75	0.990>*P*>0.97

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