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Genetic Affinity Between Two Ethnically Diverse Caste Groups of North India: A Study Based Upon 15 Microsatellite Loci

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ABSTRACT This study attempts to understand the genetic structure and affinity among two major ethnic caste groups viz., Jat and Kurmi of north India in order to examine the effect of geographical as well as occupational proximity among these groups and their genetic relationship with two other predominant populations of the same region. The genetic structure and diversity of the studied populations was examined by analyzing polymorphism at 15 microsatellite loci. The Jat and Kurmi populations displayed high degree of heterozygosity with average heterozygosity in the range of 0.788 to 0.796 at all the studied loci. The most frequent allele common for the populations was observed at four loci (D21S11, vWA, D8S1179 and D16S539) while the remaining eleven loci showed differences in their allele frequency. The level of intra-population genetic diversity is found significantly high. The coefficient of gene differentiation wars found to be low (average G_{ST} is 1.1 per cent and ranges between 0.2% at D16S539 to 2.5% at D13S317) across the loci, indicating close affinity between the two occupational caste groups. Clustering pattern based on neighbouring joining tree reveals two clear clusters, one for Kurmi and Jat and other for Khatri and Thakur populations. The results strongly demonstrate that the geographical as well as occupational proximity attributes significantly to genetic affinity between the studied populations.

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