

Incidence of ABO and Rh (D) Blood Groups among Banjara, a Nomadic Group of Rajasthan, India

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ABSTRACT The present paper reports the frequency of ABO and Rh (D) blood groups among Banjara Nomads Community, a tribal population from Jhunjhunu district and Sikar district in Rajasthan. It is observed that the allele frequencies *O* (0.514) is highest followed by *B* (0.295) and *A* (0.191). Rh negative allele *d* is 0.105. The Banjaras compared with the tribal population groups of Rajasthan.

INTRODUCTION

Analysis of phenotypic and allele frequency data from polymorphic loci is an important method for describing the pattern of genetic variation within species and inferring the phylogenetic relationships between the populations. In the early days of genetic studies, the genetic relationships among different populations were studied by examining the geographical distributions of gene frequencies at a few loci such as the ABO and RH blood group systems mainly from Indian region Bhasin et al. (1992).

MATERIAL AND METHODS

Basically, there are three types of nomadic groups: pastoral nomads, wandering tribes and semi-nomads tribes. The pastoral nomads have claim to specified tracks of land to which they return after their seasonal migration with their herds. Their pattern of migration is defined by the need for water and fodder for their herds of cattle, sheep, goats, and camels. The wandering tribes (*Khanabadosh*) do not own any herds, nor do they claim lands or permanent homes. They tend to make a living as food gatherers, musicians, quack doctors, traders or artisans and they move between urban centers offering their unique services. The semi-nomads

have their own homes and agricultural lands but travel around from time to time to make a living (Throat and Mahamallik 2005; Layamia et al. 1998)

The Banjara are a sturdy, well built, ambitious people and have a light complexion. They are the original inhabitants of Rajasthan. Their colorful dresses and jingling jewelry often draws our attention. Residing amidst the vast, arid deserts of Rajasthan in India, they somehow have kept their tradition of colorful garments and charming jewelry alive till today. The Banjaras are a nomadic people. They descended from the gypsies of Europe thousands of years ago and migrated through the rugged mountains of Afghanistan to finally settle down in the deserts of Rajasthan. The Banjara were historically nomadic, keeping cattle, trading salt and transporting goods. Most of these people have now settled down to farming and various types of wage-labor. Their habit of living in isolated groups away from others, which was a characteristic of their nomadic days, still persists. The Banjara are now experiencing rapid changes, and their traditional customs, practices and institutions are undergoing far-reaching transformations. Even though ages have passed, the Banjara women have kept themselves strongly rooted to their culture. They are perhaps the most colorful and elaborate of any tribal group in India. Undoubtedly, their dress and jewelry sets them apart from all others. Their way of dressing, impressive colors, handmade jewelry, embroidered fabric has traversed across borders and is the favorites of all handicraft lovers. Banjara style *ghagra*, *choli* and their tribal jewelry are hot fashion couture. From walking the dry deserts of India, their handicrafts have made it to the world of international fashion.

Blood samples from a total of 549 unrelated Banjara individuals of both sexes were drawn at

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random from the tribal settlements in Jhunjhunu district and Sikar district in Rajasthan. Since sex differentiations are known not to exist in the ABO blood type system, the samples collected from both males and females were pooled for the various analyses. For the ABO blood types, standard serological procedures were followed using the anti-A, anti-B and anti-D antisera. The gene frequencies for these two systems were calculated after Mourant et al. (1976)

RESULTS AND DISCUSSION

The results of the ABO blood groups are presented in Table 1. It is observed that the allele frequencies *O* (0.514) is highest followed by *B* (0.295) and *A* (0.191).

Among the other studied six tribes of Rajasthan Saharia, Mina, Kathodi and Garasia show higher frequency of allele *ABO*B* (30.6, 28.7, 27.4 and 22.9% respectively) as compared to allele *ABO*A* (16.3, 15.1, 20.6 and 20.3% respectively). Frequency of both the alleles are same among Damor (that is, 22.4%), whereas a higher *ABO*A* (21.2%) then *ABO*B* (19.9%) was observed among Bhil tribe (Kumar and Bhasin 2011). In the present study the frequency of allele *ABO*B* (29.5) is similar to that reported by Kumar and Bhasin (2011) among tribal groups of Rajasthan.

Table 1: ABO blood groups and allele frequencies among Banaras nomad tribes

Phenotype	Observed number	Percentage observed	Allele frequencies
O	145	26.4	σ 0.514
A	143	26.0	A 0.191
B	214	39.0	B 0.295
AB	47	8.6	
Total	549	100.0	1.000

$$\chi^2=102.942, \text{ df. } 3, 0.90 > p > 0.80, D/\sigma P=0.9841$$

Table 2 shows Rh (D) the frequency of allele *D* and *d* 0.895 and 0.105, respectively. Kumar and Bhasin (2011) reported six different tribe groups among whom the frequency of the allele *d* is about 18% whereas in the present study it is 10.50 percent.

Table 2: Rh (D) phenotypes and allele frequency among Banjara nomad tribes

Phenotypes	Number observed	Allele frequencies
Rh (D) +ve	543 (98.9)	0.8950
Rh (D) -ve	6 (1.1)	0.1050
Total	549 (100.0)	1.0000

Figures in parentheses are percentages

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