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Genetic Characterization of the Biates of Saipung Village of Jaintia Hills District, Meghalaya

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ABSTRACT Genetic variation in the Biates of Saipung village was studied with the help of markers ABO and RH(D) blood groups, Phenylthiocarbamide (PTC) taste sensitivity and colour blindness. A total of 162 individuals were tested of which 81 were males and 81females. It was found that the present population is in genetic equilibrium with respect to the ABO blood group system. Out of 162 individuals tested, only two subjects (1.23%) were RH-negative. The frequency of colour blindness was 2.47%. The low frequency of Rh-negative blood group and colour blind individuals in Biate seems to be similar to other neighboring populations of Northeast India. In case of PTC taste sensitivity trait the frequencies for taster (*T*) and the non-taster (*t*) alleles was calculated as 0.7278 ± 0.0014 and 0.2722 ± 0.0014, respectively. Biates when compared with the other population groups for the genetic markers observed for the present study fall nearer to the other neighbouring populations of north-east India.

INTRODUCTION

Biological Anthropology deals with the comparative biogenetics of man. Within the various fields of research of the present Biological Anthropology the studies of human evolution as well as the study of genetic variation in modern man hold an eminent place. An important branch of Biological Anthropology is therefore Population Genetics, which deals on the one hand with exact genetic descriptions of human population, but which on the other hand tries to find out the reasons for genetic differences among them.

The present study is conducted for genetic markers (blood groups, colour blindness and tasting ability) among Biates, who are one of the Mongoloid tribes of the Tibeto Burman linguistic groups known as the Mizo Chinnlung or Sianglung tribe of north-east India and compare with the other populations groups with Mongoloid affinities from neighbouring stated of north-east India .

MATERIAL AND METHODS

Saipung is a hilly village and the area is rural. Because of the hilly tract in their region and lack of communication and transport facilities, the Biate are still practicing shifting cultivation. The Biates are one of the Mongoloid tribes of the Tibeto Burman linguistic groups known as the Mizo Chinnlung or Sianglung tribe of north-east India. They are akin to Lushai, Hmars, Hcankhols, Darlongs, Sakchep, Choral, Bawns and other Chin-Kuki Lushai tribes. The Biates have a distinct culture, language and customs from other tribes. The Biate are now settled in the Jaintia Hills districts of Meghalaya. The Biates have dark brown skin colour with yellowish tinge and a broad rounded face, high and prominent cheek bones and round face, narrow eye with flat short nose. Most of them are short and sturdy with good development of muscles. The Biate are non- vegetarian. They eat beef, pork, buffalo meat and the flesh of jungle animals and birds. Their staple food is rice. The Biates still maintain the traditional joint family and there are only a few nuclear families. Traditionally, the Biates follow clan exogamy. Inheritance is through patrilineal and decent are practiced by the Biates takes the clan of their father. The traditional religion of the Biate appears to be a blend of naturalism, animism and animalism. The blood groups an-alysis was done as per manufacturer instructions (Span Diagnostic Ltd.), the serial dilution method; suggested by Harris and Kalmus (1949) was followed to collect data on PTC taste sensitivity and Ishihara chart (1959) was used to collect data on colour blindness.

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RESULTS AND DISCUSSION

It is seen from the Table 1 that in ABO blood groups the percentage frequencies of O, A, B, and AB in Biates were 25.31 %, 41.36%, 22.84% and 10.49%, respectively. It shows that the frequency of A blood group is highest followed by the blood group O, B and AB. The allele frequencies *A, B* and *O* were calculated as 0.3072 ± 0.0609, 0.1842 ± 0.0449 and 0.5086 ± 0.0502, respectively. Applying the test of goodness of fit, it was found that the distribution of ABO phenotypes in the present population was in genetic equilibrium (χ^2 = 0.1717, df =1, p>0.05).

Table 1. Phenotype and allele frequencies of the ABO blood groups in Biates of Meghalaya

Phenotype	*Total (n =162)*	
	Number	*%*
O	41	25.31
A	67	41.36
B	37	22.84
AB	17	10.49

Allele frequencies ± Standard error (SE):A = 0.3072 ± 0.0609, *B* = 0.1842 ± 0.0449, *O* = 0.5086 ± 0.0502 χ^2 =0.1717, DF = 1, P>0.05

Table 2 shows the phenotype and allele frequencies of the RH (D) blood groups in the Biates. In the total material 2 subjects were found to be RH(D) negative giving an incidence of 1.23% for the phenotype.

Table 2: Phenotype and allele frequencies of the RH(D) blood groups in Biates of Meghalaya

Phenotype	*Total (n = 162)*	
	Number	*%*
RH(D) +	160	98.77
RH(D) -	2	1.23

Allele frequencies ± Standard error (SE):d = 0.111 ± 0.039, *D* = 0.889 ± 0.039

Table 3 shows allele frequencies of PTC taste sensitivity for taster (*T*) and the non-taster (*t*) alleles was calculated as 0.7278 0.0014 and 0.2722 ± 0.0014, respectively. Table 4 shows that there were 4 cases (2.47%) of colour blindness in males, while the trait was absent in females.

Table 4: Frequencies of colour blindness in Biates of Meghalaya

Phenotype	*Males (n =81)*		*Females (n =81)*	
	Number	*%*	*Number*	*%*
Red-green deficiency	4	4.94	0	0
Normal	77	95.06	81	100.00

The present study show the frequency of allele *A* is quite high as compared to allele *B*, the frequencies of RH negative, tasting ability and the incidence of colour blind are in low frequencies, and these are the characteristics of the population groups with Mongoloid affinities from the North East Region of the Himalayas as reported by Bhasin and Walter (2001).

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REFERENCES

Bhasin MK, Walter H 2001. *Genetics of Castes and Tribes of India*. Delhi: Kamla-Raj Enterprises.

Harris H, K Kalmus 1949. The measurement of taste sensitivity to PTC. *Ann Eugen (London)* 15: 24-31.

Ishihara S 1959. *Tests for Colour Blindness*. Tokyo: Kannehara Shuppan Co. Ltd.

Table 3: Frequency of PTC tasters and non-tasters in Biates of Meghalaya

PTC taste sensitivity	*Males (n = 81)*		*Females (n = 81)*		*Total (n =162)*	
	Number	*%*	*Number*	*%*	*Number*	*%*
Tasters	77	95.06	73	90.12	150	92.59
Non-tasters	4	4.94	8	9.88	12	14.81

Allele frequencies ± Standard error (SE):t = 0.2722 ± 0.0014, *T* = 0.7278 ± 0.0014