

A Genetic Study on the Purum (Chothe) Tribe of Manipur

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ABSTRACT Probably due to their consanguineal preferential type of marriage system, the Chothe of Manipur show high occurrence of O blood group (47.76%) and comparatively higher frequency of non-tasters of P.T.C. taste sensitivity as compared to some other populations of Manipur.

INTRODUCTION

For their unique mode of mate selection, and reporting as extinct population in 1971 decennial census, coupled with the pressure of strain in sandwiching in between the amalgamating process of Kuki and Naga conflict, the Purum of Manipur have become the cynosure of many anthropologists of the world. Fresh investigation revealed that the Purum is a misnomer of the ethnonym 'Chothe' (Singh et al., 2005). The Chothe are comprised of 2440 souls concentrated in eleven villages in Chandel district and one village in Bishenpur district of Manipur, North East India. In the present paper, an attempt has been made to discern the genetic composition of the tribe.

MATERIAL AND METHODS

A total of 400 subjects were studied from the 12 Chothe villages of Manipur. Data on genetical traits - ABO blood groups, Rh factor and PTC taste sensitivity were collected from both sexes (200 males, 200 females) and data on colour blindness were collected from 200 males only. In the present study close relatives were not included. Standard laboratory techniques of Lawler and Lawler (1951), Harris and Kalmus (1949) and Ishihara (1972) were followed.

RESULTS AND DISCUSSION

Results of the present study are depicted in table 1. Analysis of ABO blood group system reveals that among the Chothe tribe, O blood group is found to occur in highest frequency (47.76%) having an allele frequency of $O = 0.6910$ while that of A and B are 0.1785 and 0.1485, respectively. Comparatively high occurrence of

O blood group which is recessive to A and B blood types is a noteworthy feature. One of the plausible explanations of this higher occurrence of allele frequency of O blood group is higher incidence of consanguineous marriage within the community which is an inherent ancient legacy. This endogamous tribe maintained systematic clan based marriage rules wherein cross-cousin marriage is preferred and practised. As a result of this, homozygosity of O might have taken place. This trend of occurrence of high O blood group phenotype is supported by the research work conducted among the Manipuri Muslims who are strictly endogamous and who also practice preferential type of cross-cousin marriage (Shah and Singh, 1986). Similar findings have also been reported among the Kabui ($A=0.228, B=0.163, O=0.609$; Singh, 1986), Tangkhul ($A=0.210, B=0.148, O=0.624$; Kapaiwo, 1995), Chiru ($A=0.120, B=0.150, O=0.730$; Singh and Shah, 1997), and Koireng ($A=0.180, B=0.100, O=0.720$; Shah, 2001).

In the present study, of the 400 individuals tested, only 3 (0.75%) were found to be Rh-negative thereby giving frequency of 0.0866 for the d allele.

The distribution of the ability to taste PTC in the total Chothe material shows that 31.25% were non-tasters. The non-taster frequency is comparatively lower among the Meitei (13.65%; Chakravarty, 1986), Kabui (14.56%; Chakravarty, 1986) and Kom (12.50%; Singh, 2002). Since the Chothe population is a very small endogamous population and consanguineous marriage being their preferential form of marriage, the homozygosity of t allele might have accounted for the comparatively higher occurrence of non-taster allele. Similar findings of prevalence of higher frequency of non-tasters among the inbreeding tribal population of Andhra Pradesh were reported by Ramana and Naidu (1992).

Table 1: Genetic markers among the Purum (Chothe) tribe of Manipur

Genetic marker	Number tested	Phenotype	Number observed	Allele frequency
ABO	400	O	191(47.75)	O = 0.6910
		A	99 (24.75)	A = 0.1785
		B	79 (19.75)	B = 0.1485
		AB	31(7.75)	
Rhesus	400	Rh +ve	397(99.25)	D = 0.9134
		Rh -	3 (0.75)	d = 0.0866
PTC Tasting Ability	200	Taster	140 (70.00)	T = 0.4523
	Males	Non-Taster	60 (30.00)	t = 0.5477
	200	Taster	135 (67.50)	T = 0.4300
	Females	Non-Taster	65 (32.50)	t = 0.5700
	Total	Taster	275 (68.75)	T = 0.4410
	400	Non-Taster	125 (31.25)	t = 0.5590
Colour Blindness	200	Normal	187 (93.50)	0.935
	Males	Colour-blind	13 (6.50)	0.065

Figures in parentheses are percentages.

With regard to colour blindness, it was observed that of the 200 males tested, 6.50% were found to be colour blind. No definite trend of occurrence of colour blindness is observed among the populations of Manipur so far examined and reported by other workers (Meitei - 4.5%; Chakravarti, 1986; Manipur Meitei - 4.0%, Assam Meitei- 3.0%, Singh, 1991; Kabui - 4.96%, Singh, 1977; Kom -2.92%, Singh, 2002)

REFERENCES

- Chakravarti, R.: *People of Manipur*. B.R. Publishing Corporation, Delhi (1986).
- Harris, H. and Kalmus, H.: The measurement of taste sensitivity to PTC. *Ann. Eugen.*, **15**: 24-31 (1949).
- Ishihara, S.: *Test for Colour-Blindness. 38 Plates Edition*. Kanehara Shuppan Co.Ltd., Tokyo (1972).
- Kapaiwo, Th.: *ABO and Rh -Blood Group Distribution among the Tangkhuls of Manipur*. Unpublished M.Sc. Dissertation, Manipur University, Canchipur (1995).
- Lawler, S.D. and Lawler, L. J.: *Human Blood Groups and Inheritance*. William Heinemann Ltd., London (1951).
- Ramana, G.V. and Naidu, J. M.: PTC Taste sensitivity and colour blindness among Manna Dora. *Man in India*, **72(4)**: 455-458 (1992)
- Shah, M.L.: ABO Blood Groups among the Koirangs of Manipur. *J. Anthro. Soc. Manipur*, **3**: 47-51 (2001).
- Shah, M.L. and Singh, K. S.: ABO blood group frequencies among the Muslims of Manipur. *Bull. Deptt. Anthropol. Dibrugarh University*, **15**: 121-127 (1986).
- Singh, H. V.: *Anthropogenetic Study of the Purum Tribe of Manipur*. Unpublished. Ph.D. Thesis, Manipur University, Canchipur (2005).
- Singh, L.R.: *Physical Variation Between the Two sections of Kabuis of Manipur and Their Ethnic Position*. Unpublished Ph.D. Thesis, Gauhati University, Gauhati (1986).
- Singh, L. R.: *The Kom Tribe of Manipur- Their Demography, Culture and Bio-anthropology*. Unpublished Ph.D. Thesis, Manipur University, Canchipur (2002).
- Singh, R.K.R. and Shah, M.L.: *The Chiru Tribe of Manipur: A Bio-anthropological Study*. A Project report submitted to the Directorate for Development of Tribals and Backward Classes. Govt. of Manipur (1997).
- Singh, S. J.: *Anthropo-genetical Variations on the Meiteis of Assam and Manipur*. Unpublished Ph.D. Thesis, Manipur University, Canchipur (1991).
- Singh, S. J. and Singh, H.V.: Purum - A Misnomer for Chothe (A Discourse on the Ethnonym and Identity of the People). *South Asian Anthropologist*, **5(2)**: 229 -233 (2005)