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PTC Taste Sensitivity and Colour Blindness Among the Lotha Naga of Nagaland

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INTRODUCTION

The Lothas are a heterogeneous and no consanguineous population inhabiting Wokha district of Nagaland. It has a population size of 82, 612 scattered over an area of 1, 628sq. km. (Census, 1991). Ethnically, they belong to Mongoloid group and speak a Tibeto-Burman language (Ghosh, 1992). No other study on PTC taste sensitivity and colour blindness among the Lotha Nagas is available.

MATERIALS AND METHODS

A total of 280 persons (140 of each sex) were tested both for phenylthiocarbamide taste sensitivity and colour blindness. Data were analysed by following the methods given by Harris and Kalmas (1949) for PTC and that of Ishihara (1972) for colour blindness.

RESULTS AND DISCUSSION

The results of analysis for PTC taste ability are given in table 1 and figure 1. Among the Lotha Nagas, the overall frequency of tasters and non-tasters are 76.79 percent and 23.21 percent, respectively.

The gene frequencies of 'T and't' are 0.5181 and 0.4819, respectively. With respect to

PTC taste sensitivity among other Naga populations, the only other study available is of Seth and Seth (1973) on the Angami Nagas. But the Lotha showed a much lower taster allele frequency than that of the Angami (0.7551). This difference is found to be statistically significant ($\chi^2 = 4.3248$; df =1; $p < 0.05$) showing genetic differentiation of these two Naga populations with respect to PTC taster gene polymorphism.

In the present sample no colour- blind individual was found. Earlier, Mukherjee had published data on colour blindness among the Nagas as a whole. Seth and Seth (1973) studied the colour blindness among the Angami Nagas, and Singh (1982) studied it among Tangkhul Nagas of Manipur. In all these studies also no colour-blind individual was found. The present population is a tribal population living on a subsistence economy and the present

Table 1: Frequency, mean and standard deviation of PTC tasters and non-tasters among the Lothas

Sex	*No. Tested*	*Number*		*Percentage*		*Allele frequency*		*Mean ± SD for tasters*
		Tasters	*Non-testers*	*Tasters*	*Non-testers*	*T*	*t*	
Male	147	113	34	76.87	23.13	0.5191	0.4809	6.98 ± 0.18
Female	133	102	31	76.69	23.31	0.5172	0.4828	7.09 ± 0.15
Total	280	215	65	76.79	23.21	0.5181	0.4819	7.06 ± 0.14

Table 2: Distribution of Colour blindness among the Lotha Nagas

Sex	*No.*	*Normal*	*%*	*Red Green colour deficiency*			
				Protan	*%*	*Deutan*	*%*
Male	147	147	100	0	0	0	0
Female	133	133	100	0	0	0	0
Total	280	280	100	0	0	0	0

Fig. 1: Distribution of threshold values for PTC taste sensitivity among the Lothas

observation reinforces Post's hypothesis of 'selection relaxation' vis-à-vis colour blindness that there is more stingent selection against this gene among the tribals than among the urbanites.

KEY WORDS PTC Taste Sensitivity. Colour Blindness. Lotha Naga. Nagaland

ABSTRACT Data on PTC taste sensitivity and colour blindness were collected from the Lotha Naga of Nagaland. Data were collected on 280 individuals of both the sexes. The allele frequency for taster 'T' is 0.5181. Not a single colour-blind individual was found among Lotha males and females.

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