

Tasting Ability of Phenyl-Thio-Carbamide (PTC) Among Koraga Tribe of Karnataka

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ABSTRACT The Koraga, a tribal group of Karnataka had been studied to determine PTC taste ability. The percentage of tasters and non-tasters are 87 per cent and 13 per cent, respectively. The incidence of *T* and *t* gene are 64 per cent and 36 per cent, respectively. The average heterozygosity for PTC taste sensitivity gene is 0.4588 among the Koraga.

INTRODUCTION

Fox discovered in 1932 that taste sensitivity to an organic compound, Phenyl-thio-urea synonymous with phenyl-thio-carbamide can classify human beings, irrespective of age and sex into two classes, Tasters and Non tasters. No effect of age and sex was found on the tasting ability in a familial study by Singhal et al. (1995). The tasters would experience a bitter taste for PTC compound, whereas, the non taster would find it tasteless. PTC taste ability is an established genetic marker to study human genetic variation. PTC taste ability is determined by a single autosomal gene. The taster gene (*T*) is dominant over its non-taster allele (*t*) (Snyder, 1931). There were attempts to explore the heter-

ozygotes (*Tt*) and their threshold levels (Reddy and Mukherjee, 1975) and the degree of penetrance of gene (Das, 1958). The present paper is aimed to find out PTC taste ability among the Koraga tribe of Karnataka.

The Koraga's traditional occupation is basket making. They work as labourers and also employed as scavengers by the sanitary department. In social hierarchy the Koragas are ranked as the lowest *i.e.*, even below the Holayyas, the untouchable caste of Karnataka, as the Koragas do not follow pollution and eat flesh of dead cattle and left over food by the other castes (Thurston, 1909).

MATERIAL AND METHODS

A sample of 118 Koraga individuals from 8 settlements (namely-Kammedu, Guttakadu, Goondave, Edurpadave, Alevooru, K.R.R. Nagar, Athradi and Manchikumeri) in Dakshina Kannada district of Karnataka, were screened for PTC taste sensitivity test. The sorting out technique of Harris and Kalmus (1949) was adopted to determine the threshold value of PTC taste sensitivity.

Table 1 : PTC taste threshold distribution with mean (X), standard deviation (σ), with standard error (S) and variance (V) among Koraga

Taste threshold numbers	< 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	
No.	7	*2	5	1	2	2	6	17	21	7	15	11	8	6	9	118	
%	5.93	1.69	4.24	0.85	1.69	1.69	5.09	14.41	17.8	5.93	12.71	9.32	6.78	5.09	6.78	100	
	<i>N</i>	<i>X</i> + <i>SE</i>		σ + <i>SE</i>			<i>V</i>		<i>D</i>		<i>S</i>		<i>D/S</i>				
Non-tasters	15	1.00 ± 0.2828		1.0954+0.19999			1.1999		8.33		1.79		4.64				
Tasters	103	9.33 + 0.2458		2.4942+0.3114			6.22										

< 1 Denotes those who are unable to taste PTC stock solution

RESULTS AND DISCUSSION

PTC taste threshold distribution, mean threshold values, standard deviation, variance and D/s index were given in table 1. The antimode falls at the solution No. 3 among the Koragas. The percentage of tasters and non-tasters is 87 per cent and 13 per cent, respectively. Mean threshold value for tasters is 9.33 and non-tasters is 1.00. Penrose's D/S index value, 4.6 indicates that the PTC taste threshold value's distribution is bimodal in nature.

Taster gene (*T*) frequency is 64 percent, and non-taster gene frequency is 36 per cent (Table 2) among Koraga tribe of Karnataka. The incidence of non-taster gene is found to be high among non-tribals of Karnataka which ranges from 56 to 83 per cent. Yet low frequency of non-taster gene (33%) was reported among Paniyan tribe of Kerala (Das and Gosh, 1954). The distribution shows sharp regional differences. Bhasin et al. (1994) evolved that taster allele, *T* is present in high frequency among Mongoloid

Table 2 : PTC taste phenotypes and gene frequency among the Koraga

	Pheno type		Gene frequencies + SE
	No.	%	
Taster	103	87.29	1 0.6435 + 0.0040
Non-Tasters	15	12.71	1 0.3565 + 0.0040
Total	118	100.00	

populations of E. Asia, South East Asia, and Indian populations with Mongoloid affinities, Islanders followed by North and South India, is low in west and central India as well as among scheduled tribes in general. Mean taster allele is 45.1 percent (ranges 10.8% to 76.25%) among

the tribes of India. Taster allele ranges from 19.8 per cent to 71.8 per cent with a mean value 44.3 per cent in the tribes of peninsular India. Among the Koragas of the present study allele (64%) is on par with earlier works. The magnitude of genetic variation that exists within Koraga population is 45.88 per cent based on PTC taste sensitivity gene loci.

The present paper indicates that Koragas a primitive tribe, inhabiting in the Coastal districts of Karnataka have a very high degree of tasters. This goes well with the earlier observation that populations inhabiting in the Coastal and north-eastern regions of hilly areas show higher taster gene.

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