

## PTC Taste Sensitivity in Two Endogamous Caste Populations of Coastal Andhra Pradesh

M. Ramesh, Md. N. Khaja and P. Veerajju

*Department of Human Genetics, Andhra University, Visakhapatnam 530 003, Andhra Pradesh, India*

**KEY WORDS** PTC Taste Sensitivity. Caste Populations. Andhra Pradesh.

**ABSTRACT** This paper reports results of PTC taste perception in two endogamous caste populations (Brahmins and Yadavas) of Coastal Andhra Pradesh in South India.

### INTRODUCTION

The genetically determined taste sensitivity of phenyl thiocarbamide (PTC) helps to classify individuals into "tasters and non-tasters" categories (Fox, 1932). The ability to taste this chemical is due mainly to the presence of the dominant form of the gene (*T*). In view of the considerable ethnic variability in India, this taste perception parameter offers an inexpensive method to study human genetic variation in the country.

The present study was therefore planned to examine P.T.C. taste perception in two endogamous caste populations *viz.*, Brahmins and Yadavas of Visakhapatnam city of coastal Andhra Pradesh, South India.

### SUBJECTS AND METHODS

A sample of 275 randomly selected unrelated healthy school children of the both sexes from the two endogamous groups (120 Brahmins and 155 Yadavas) was screened for ability to taste P.T.C. by the serial dilution techniques described by Harris and Kalmus (1949).

### RESULTS AND DISCUSSION

The distribution of the taste thresholds for PTC among males and females of the two endogamous populations studied here is shown in table 1. The taste thresholds in the Brahmins and Yadava populations follow bimodal distribution pattern. The antimode falls at the solutions 3rd and 2nd for males and females, respectively among Brahmin, whereas in Yadavas it falls at dilution 2nd for both the sexes. The Penrose index ( $D\sqrt{S}$ ) values also determine the bimodality of the taste threshold distribution, the value being greater than 2 in both endogamous castes and sexes (Table 2).

The frequency of non-tasters is higher among Brahmins (10.83%) than in Yadavas (7.10%) (Table 2), the frequency was little higher among males than among females in both the castes, but these differences were not appreciable.

The incidence of non-taster allele 'r' was higher (0.3291) in the Brahmin compared to the Yadava (0.2664) (Table 2). However, there was no suggestion of any intergroup heterogeneity between them  $\chi^2 = 1.1569$ ; d.f. = 1;  $0.03 > p > 0.20$ .

### REFERENCES

- Fox, A.L. : The relation between chemical constitution and taste. *Proc. Natl. Acad. Sci.*, **18** : 15 (1932).
- Harris, H. and Kalmus, H. : The measurement of taste sensitivity to PTC. *Ann Eugen. Lond.*, **15** : 24 (1949).

Table 1: PTC taste threshold distribution among present caste populations

Population	Threshold number														Total		
	<1	1	2	3	4	5	6	7	8	9	10	11	12	13		14	
<b>Brahmins</b>																	
Males	No.	3	2	2	1	3	4	4	6	8	13	8	4	3	3	2	66
	%	4.55	3.03	3.03	1.52	4.55	6.06	6.06	9.09	12.11	19.70	12.11	6.06	4.55	4.55	3.03	
Females	No.	2	2	1	3	2	3	3	3	5	9	11	4	2	3	2	54
	%	3.70	3.70	1.85	5.56	3.70	5.56	5.56	5.56	9.26	16.67	20.37	7.41	3.70	5.56	3.70	
Total	No.	5	4	3	4	5	7	7	9	13	22	19	8	5	6	4	120
	%	4.17	3.33	2.50	3.33	4.17	5.00	5.85	7.50	10.84	18.33	15.83	6.67	4.17	5.00	3.33	
<b>Yadavas</b>																	
Males	No.	2	3	1	2	4	3	5	6	9	18	13	5	4	3	2	80
	%	2.50	3.75	1.25	2.50	5.00	3.75	6.25	7.50	11.25	22.50	16.25	6.25	5.00	3.75	2.50	
Females	No.	1	2	1	2	5	4	6	6	9	11	12	7	5	3	1	75
	%	1.33	2.67	1.33	2.67	6.67	5.33	8.00	8.00	12.00	14.67	16.00	9.33	6.67	4.00	1.33	
Total	No.	3	5	2	4	9	7	11	12	18	29	25	12	9	6	3	155
	%	1.93	3.23	1.29	2.58	5.81	4.52	7.10	7.74	11.61	18.71	16.13	7.74	5.81	3.87	1.93	

Table 2: Taste threshold mean, standard deviation, phenotypes and allele frequencies for tasters and non-tasters among present caste populations

Population	n	Tasters		Non-tasters		S	D	DVS	Phenotypes		Allele frequencies			
		Mean ( $M_1$ )	S.D. ( $S_1$ )	Mean ( $M_2$ )	S.D. ( $S_2$ )				Tasters	Non-tasters	T	t		
													No.	Per cent
<b>Brahmin</b>														
Males	66	8.7241	2.4836	1.1250	1.0533	1.7685	7.5991	4.2969	58	87.88	8	12.12	0.6518	0.3482
Females	54	8.8163	2.7677	0.6000	0.8366	1.8022	8.2163	4.5590	49	90.74	5	9.26	0.6957	0.3043
Total	120	8.7130	2.6519	0.8333	0.8349	1.7434	7.8797	4.5197	107	89.17	13	10.83	0.6709	0.3291
<b>Yadava</b>														
Males	80	8.6892	2.4874	0.8333	0.7528	1.6201	7.8559	4.8490	74	92.50	6	7.50	0.7261	0.2739
Females	75	8.5211	2.6263	1.0000	0.8165	1.7214	7.5211	4.3692	70	93.33	5	6.67	0.7418	0.2582
Total	155	8.6068	2.5577	0.9000	0.7379	1.6438	7.7068	4.6770	144	92.90	11	7.10	0.7336	0.2664

S = Average standard deviation of  $S_1$  &  $S_2$ 

D = Deviation of mean values