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PTC Taste Sensitivity Among the Muslims of Calcutta, West Bengal

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KEY WORDS PTC Tasting Ability. Muslims. Polymorphism. Variation.

ABSTRACT A total of 344 individuals from Bengalee and non-Bengalee Sunni sect Muslim community of Calcutta, West Bengal was tested for PTC tasting ability. Although no sex difference was found among these two groups of Muslims, the higher mean threshold value for tasters among the Bengali Muslims compared to that of the non Bengalee Muslims was evident.

INTRODUCTION

Variable taste sensitivity of phenylthiocarbamide (PTC) has been widely used as a polymorphic genetic marker in human populations. The frequency of tasters in India ranges from 98% in the Khasis of Assam (Miki et al., 1960) to 26% among the Southern Pahira (Basu et al., 1966).

Although the PTC tasting ability was searched in Muslims of different states of India (Srivastva, 1959; Mahapatra and Das, 1968; Kalla, 1971; Das, 1984-85, Devi and Singh, 1990), Only a few studies on Muslims (Bhattacharjee, 1956; Dash Sharma and Haque, 1978) of West Bengal has been done (Bhasin et al., 1992). The present paper deals with the PTC taste sensitivity of Muslims of Calcutta.

SUBJECTS AND METHODS

Subject for the present study comprised of 344 individuals of Bengalee (225) and non-Bengalee (119) Sunni Muslims from Calcutta, West Bengal. Bengalee Mulsims are the original inhabitants of West Bengal, while non-Bengales Muslims are mostly migrated from out side the state *e.g.* form Uttar Pradesh, Bihar etc. The data were collected from the Muslim schools as well as different Muslims families of Calcutta, West Bengal. PTC tasting ability was tested by the sorting techniques of Kalmus et al. (1981), using 13 serial dilutions of PTC.

RESULTS AND DISCUSSION

The distribution of taste threshold showed bimodality in both sexes of Bengalee as well as non-Bengalee Muslim samples of Calcutta (Table 1).

The distribution of taster and non-taster proportions in both Bengalee and non-Bengalee Muslim samples, however, showed no sex differences (Table 2). Examination on inter group variation revealed higher taster individuals than the expected (130.8) among the Bengalee Muslims compared to that of the non-Bengalee Muslims. Moreover, allele frequency estimation (Table 2) also revealed the higher frequency of *t* allele ($\chi^2 = 1.78$, d.f.1, $P<0.20$) among the non-Bengalee Muslims compared to that of the Bengalee Muslim samples of Calcutta.

Finding of higher recessive *t* allele in non-Bengalee Muslims of Calcutta seems to be related to higher incidence of consanguineous marriage among them (Basu, 1985; Hoque and Bandyopadhyay, 1992, 1993).

Allele frequency of *t* in the present study, however, showed good agreement with other Muslim data from West Bengal (Bhattacharjee, 1956; Das-Sharma and Haque, 1978; Hoque, 1994) and as well as from other States (Srivastava, 1956; Kalla, 1971).

Table 1.: P.T.C. taste threshold distribution among the Muslims of Calcutta

Population	*Sex*	*n*	*<1*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
Bengali	Male	118	17	5	8	6	2	5	9	11	10	14	9	8	7	4	3
Muslims	%		14.40	4.23	6.78	5.08	1.69	4.23	7.62	9.32	8.47	11.86	7.62	6.78	5.93	3.39	2.54
	Female	107	22	4	7	6	5	2	6	7	9	11	8	7	6	5	2
	%		20.56	3.74	6.54	5.60	4.67	1.87	6.60	6.54	8.41	10.28	7.48	6.54	5.60	4.67	1.87
	Total	225	39	9	15	12	7	7	15	18	19	25	17	15	13	9	5
	%		17.33	4.00	6.67	5.33	3.11	3.11	6.67	8.00	8.44	11.11	7.55	6.67	5.78	4.00	2.22
Non-	Male		14	4	5	3	1	5	7	6	8	7	3	2	1	1	1
Bengali	%		20.59	5.88	7.35	4.41	1.47	7.35	10.29	8.82	11.76	10.29	4.41	2.94	1.47	1.47	1.47
Muslims	Female	51	12	5	4	3	4	5	3	3	2	4	2	2	1	1	0
	%		23.30	9.80	7.84	5.88	7.84	9.80	5.88	5.88	3.92	7.84	3.92	3.92	1.96	1.96	0.00
	Total	119	26	9	9	6	5	10	10	9	10	11	5	4	2	2	1
	%		21.84	7.56	7.56	5.04	4.20	8.40	8.40	7.56	8.40	9.24	4.20	3.36	1.68	1.68	0.84

Table 2: Allele frequencies of PTC tasting ability among the Muslims of Calcutta

Population	*Sex*	*Position of antimode*	*Taster*		*Non-taster*		*Allele frequency*	
			No. Obs.	*% Obs.*	*No. Obs.*	*% Obs.*	*T*	*t*
Bengalee	Male	4	80	67.80	38	32.20	0.425	0.575
Muslims	Female	5	61	57.00	46	43.00	0.337	0.663
	Total	5	136	60.44	89	39.56	0.371	0.629
Non-Bengalee	Male	4	41	60.30	27	39.70	0.370	0.630
Muslims	Female	3	27	52.94	24	47.06	0.314	0.686
	Total	4	64	53.79	55	46.21	0.320	0.680

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