

A Study on A_1A_2BO and RH (D) Distribution Among Two Endogamous Populations of Chittoor District, Andhra Pradesh

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ABSTRACT Data are presented on the distribution of A_1A_2BO and Rh(D) blood groups among the Edigas and Shaikhs of Chittoor District, Andhra Pradesh.

INTRODUCTION

The frequency distribution of various genetic characters are extensively employed in the study of ethnic variation and in the evaluation of the degree of affiliation among human populations. Although several such studies are available on various castes, tribes and religious populations from different parts of Andhra Pradesh, certain populations/regions of the state still remain unprobed. It is therefore that the present study was carried out among two populations: Hindu - Ediga and Muslim - Shaikh inhabitant of Puttur and Chandragiri Taluqs of Chittoor district.

The Ediga, is a widely distributed population in Andhra Pradesh as also in Tamilnadu and Karnataka states. They are mostly toddy drawers, but many have taken to agriculture too. In Andhra Pradesh they speak Telugu. Literacy rate is poor. Cross-cousin marriages are permitted. They are non-vegetarians.

The Shaikhs, one of the four Muslim groups namely Shaikhs, Syeds, Pathans and Mughals are found in Rayalaseema and Telangana areas of Andhra Pradesh. They are said to be Arab descents. Literacy rate is poor. Parallel cousin marriages are permitted. They are also non-vegetarians.

MATERIAL AND METHODS

Blood samples were collected from a total of 184 unrelated Ediga individuals from

Venkatapuram (latitude $79^\circ 27'$ East, longitude $13^\circ 38'$ North) and 150 unrelated individuals of the Shaikh Muslim from Tirupati (latitude $79^\circ 27'$ East, longitude $13^\circ 38'$ North) and Chandragiri (latitude $79^\circ 19'$ East, longitude $13^\circ 25'$ North). Standard procedures and techniques of Race and Sanger (1962) were followed in the collection and analysis of A_1A_2BO and Rh(D) blood groups, which were typed in the department laboratory with antisera supplied by M/s Decruz, Bombay. The gene frequencies were calculated according to Bernstein (1930).

RESULTS AND DISCUSSION

The A_1A_2BO distribution is shown in table 1. The overall phenotype (blood group) picture for the Edigas is $O > B > A_1 = A_2 > A_1B > A_2B$ and for the Shaikhs it is $O > B > A_1 = A_2 > A_1B > A_2B$. The allele frequency picture in both the religious groups is same ($O > B > A$), which is in agreement with majority of South Indian caste populations with respect to the sub-types of A allele.

The D/σ value is far lower than 2 in both the populations, thus confirming their internal homogeneity.

The phenotype and allele frequencies of Rhesus blood groups are presented in table 2. The Rh negative phenotype frequencies are found to be 5.43% and 4.67% and the d allele frequencies are 0.2331 and 0.2160, respectively in the Edigas and Shaikhs.

The contingency chi-square values show that these two populations differ significantly with respect to A_1A_2BO system ($\chi^2 = 15.9152$, $df : 5$ $p < 0.01$), but not with regard to Rhesus system ($\chi^2 = 0.1026$, $df : 1$ $p > 0.05$).

Table 1 : A₁A₂BO blood group distribution in the Edigas and the Shaikhs

Blood group	Edigas			Shaikhs		
	No. Obs.	% Obs.	Allele frequencies	No. Obs.	% Obs.	Allele frequencies
O	59	32.07	O 0.5763	61	40.67	O 0.6567
A ₁	34	18.48	A ₁ 0.1223	16	10.67	A ₁ 0.0956
A ₂	34	18.48	A ₂ 0.1311	13	8.67	A ₂ 0.0188
B	44	23.91	B 0.1703	48	32.00	B 0.2281
A ₁ B	8	4.35		11	7.33	
A ₂ B	5	2.72		1	0.67	
D/σ	0.0109			0.0133		

 $\chi^2 = 12.5926$ at 1%

Table 2 : Rhesus blood group distribution in the Edigas and the Shaikhs

Blood group	Edigas			Shaikhs		
	No. Obs.	% Obs.	Allele frequencies	No. Obs.	% Obs.	Allele frequencies
Rh(D) +	174	94.57	D 0.7669	143	95.33	D 0.7840
Rh(D) -	10	5.43	d 0.2331	7	4.67	d 0.2160

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