

A Study on the Blood Groups and Colour-Blindness Among Yadavas- A Caste Population of Andhra Pradesh, South India

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ABSTRACT The variabilities of the ABO and Rh(D) blood groups, and the incidence of colour-blindness among the Yadavas, a caste population of East Godavari District of Andhra Pradesh, have been investigated. The genetic traits studied here have exhibited distribution patterns similar to that reported earlier in other caste populations of Andhra Pradesh.

INTRODUCTION

The present paper reports the distribution of the ABO and Rh(D) blood groups as well as the incidence of defective colour vision among the Yadavas, an endogamous Telugu-speaking caste population of Andhra Pradesh, South India. This caste group is largely distributed in most of the districts of this state (Thurston, 1975). The hereditary occupation of the Yadavas is tending sheep and cattle and selling milk, but many of them have now acquired lands and are engaged in farming; some are in Government services and in trade. Presently this community is included under reserved categories (Backward class-D) for employment purposes by the Government of Andhra Pradesh.

MATERIALS AND METHODS

Subjects comprised a total of 216 randomly selected unrelated healthy adult individuals (107 males, 109 females) belonging to the Yadava caste residing in and around Tuni area of East Godavari District of Andhra Pradesh. The blood samples were obtained by finger pricking and collected in sterile test tubes containing ACD solution as an anticoagulant. Blood typing was done using standard antisera with suitable controls. The gene frequencies

were calculated after Mourant et al. (1976). These subjects were also tested for red-green colour blindness with Ishihara (1972) plates numbered 1 to 38.

RESULTS AND DISCUSSION

Phenotype and allele frequencies for the ABO and Rh(D) blood groups are shown in table 1.

Table 1 : Phenotype and allele frequencies of the ABO and Rh(D) blood groups among Yadavas

Phenotype	n	Per cent	Allele frequency
<i>ABO Blood Groups</i>			
O	101	46.76	O = 0.6884
A	25	11.57	A = 0.0747
B	84	38.89	B = 0.2369
AB	6	2.78	
Total	216	100.00	1.0000
<i>Rhesus Blood Groups</i>			
Rh(D) +ve	210	97.22	D = 0.8333
Rh(D)-ve	6	2.78	d = 0.1667
Total	216	100.00	1.0000

ABO Blood Groups

The difference between observed and expected frequencies for ABO blood groups is

not statistically significant. The Chi-square value ($\chi^2_{(1)} = 0.5001$; $p > 0.10$) reveal that, this population is in homogeneity.

Table 2 : Incidence of red-green colour-blindness among Yadavas

Sex	n	Normal		Colour-blind		Deutan	
		No.	%	No.	%	No.	%
Male	107	105	98.13	2	1.87	2	1.87
Female	109	109	100.00	—	—	—	—

The phenotype frequencies observed for O (47%), B (39%) and A (12%) are in a decreasing order, and that of AB (3%) is very low. The Yadava caste group shows unusually high frequency of the O allele (69%), while the frequency of the B allele (24%) is much higher as compared to that of the A allele (7%). This trend is in agreement with that generally observed among the earlier reports on caste populations of Andhra Pradesh (Naidu et al., 1990; Balakrishna and Satyanarayana, 1991; Ramesh et al., 1992).

Rh(D) Blood Groups

In the present sample the frequency of the D allele was observed 0.8333 and that of the d allele 0.1667. In the earlier reports on Andhra Pradesh castes, the d allele frequency varied from a minimum of 0.1554 (Balakrishna and Satyanarayana, 1991) to a maximum of 0.2915 (Ramesh et al., 1992). The mean Rh(D) negative frequency in the pooled data on castes of Andhra Pradesh was found to be 7.23% (Naidu et al., 1990). The frequency recorded in the present study (2.78%) is comparatively lower, but simi-

lar to that observed in Relli caste (3.26%) by Naidu et al. (1990).

Colour-Blindness

The incidence of the red green colour-blindness among Yadava is shown in table 2. Out of 107 males tested, only two individuals were found to be colourblind — both being of the deutan type. This gave a frequency of 1.87% for colour vision defect among male Yadavas. No female tested was found colour blind, Naidu et al. (1978) reviewed so far available data on red-green colour blindness and reported a mean incidence of 4.31% in male series of Andhra caste populations. Thus by comparison the present caste population (Yadavas) has a lower frequency of this trait.

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