



**GENETIC VARIATION OF ABO AND RH (D) BLOOD GROUPS IN
SETTIBALIJA (BACKWARD CASTE) OF COASTAL ANDHRA PRADESH,
INDIA.**

DSRS Prakash¹, G.Sudhakar ², A,Umasankar³,

¹ MSc, PhD, Department of Human Genetics, Andhra University, Visakhapatnam, India.

² MSc, PhD, Department of Human Genetics, Andhra University, Visakhapatnam, India.

³ MSc, PhD, Department of Biochemistry, Andhra University, Visakhapatnam, India.

ABSTRACT

The distribution of ABO blood groups and Rh(D) factor has been studied among the Settibalija of Backward population of Coastal Andhra Pradesh. The O, A, B, and AB blood group percentage were recorded as 32.43%, 23.34%, 37.59% and 6.63% respectively. The Rh-negative incidence was recorded as 3.20% The allele frequencies of O, A, B and AB groups in the combined data were found to be 0.5808, 0.1643, and 0.2550 respectively and Rh (D) positive allelic frequency was 0.8213.

KEYWORDS: Blood Groups, Settibalija caste, Coastal Andhra Pradesh

INTRODUCTION

The most interesting genetic makers are screened by human population genetists for the sake of study of ethnic variation of blood groups (Race RR, Sanger R 1962). The very first observation of the agglutination of human red cells by serum belonging to the same species made by Landsteiner in 1900 A.D. The ABO blood group distribution varies in different geographical and ethnic groups. ABO blood group genes are mapped at 9q34.2. The ABO typing is the most important test performed in transfusion practice today and the single most common cause of transfusion related fatalities is due to patient being transfused with ABO incompatible blood. During the last five decades, numerous studies have been carried out on the distribution of blood groups and genetic composition of various endogamous population groups in India (Bhasin et al. 1992;1994). In this paper an attempt is made to study the distribution of ABO and Rh.(D) blood group systems among the Settibalija caste of Coastal Andhra Pradesh. The Settibalijas or Chitti Balijas who are very numerous in east and west

Godavari districts are also known as Edipa, Settipa, Setticola and Indras & other names by which this caste is called in other parts of Andhra Pradesh are Ganadla, Gowda, Gamalla, Boundla, Kalasi, Sepidiles and Yata. The settibalijas claim their descent from Vyshya, the compiler of Mahabharatha. They were originally toddy-tappers, though a few took to cultivation. They were also toddy and arrack shopkeepers during the pre-prohibition days. Thurston (1909) mentioned about this caste chetty or settibalija – As a Telugu Trading Caste. The name Chetty Baliya is also used as prefix by some castes who engage themselves on toddy tapping. The yatas, who are called by others on Yatollu, prefer to call themselves, as settibalija, yata, perhaps is an attempt to elevate their social status as backward Caste.

MATERIALS AND METHODS

Blood Samples from a total of 407 unrelated individuals of both sexes were drawn from the Settibalija (Backward caste) settlements of West Godavari district of Coastal Andhra Pradesh. Blood samples were taken from finger pricks, and the usual open slide method of testing for ABO blood groups and Rh(D) factor was followed ((Bhasin and Chahal 1996). The ABO allele frequencies were calculated according to Mourant et al. (1976). The details of each subject such as name, age, sex etc. were collected using a brief questionnaire

RESULT AND DISCUSSION

Table 1: Distribution of the ABO blood group and their allele frequencies among the Settibalija (Backward caste) (Number of samples analyzed=407)

<i>Phenotype</i>	<i>Observed number</i>	<i>Percentage</i>	<i>Expected Number</i>	<i>Allele Frequency</i>
O	132	32.43		0.5808
A	95	23.34		0.1643
B	153	37.59		0.2550
AB	27	6.63		
Total	407			

$$D = 0.0141 \quad \delta = 0.0353 \quad D/\delta = 0.4003$$

The frequency distribution of ABO phenotypes with gene frequencies are presented in table 1. It is clear from the table that B phenotype has the highest frequency (37.59%) followed by O (32.43%), A (23.34%) and AB (6.63%). The overall picture of phenotypic frequencies of ABO blood groups is B>O>A>AB. The decreasing order of allele frequency in Settibalija is O (0.5808)> B (0.2550) and A (0.1643). The allele ‘O’ exhibits the highest frequency (0.5806) followed by ‘B’ (0.2550) and ‘A’ (0.1643) are recorded in Settibalija population. The D/δ value (0.4003) which is lower than ± 1, indicating that the Settibalija population is in Hardy-Weinberg equilibrium for ‘ABO’ blood groups. The table also shows the distribution of observed and expected percentage frequencies of ABO Phenotypes. In case of

Rh (D) blood groups 96.80% were positive and 3.20% were negative. The allele frequencies were recorded 0.8213 for *D* and 0.1787 for *d* (Table 2).

Table 2: Distribution of the Rh(D) blood group and their allele frequencies among Settibalija (Backward caste)

<i>Phenotype</i>	<i>Observed Number</i>	<i>Percentage</i>	<i>Allele Frequency</i>
Rh (D) + ve	394	96.80	0.8213
Rh (D) – ve	13	3.20	0.1787
Total	407	100	1000

Acknowledgements: Authors express their sincere gratitude for giving support to publish this paper to Prof. M,Jagannadha Rao, Vice Chancellor, Adikavi Nannaya University, Rajamahendravaram, East Godavari District, Andhra Pradesh, India.

Conflict of Interest:- Non declared

REFERENCES

Bhasin MK, Chahal SMS 1996. *A Laboratory Manual for Human Blood Analysis*. Delhi: Kamla-Raj Enterprise.

Bhasin MK, Walter H, Danker-Hopfe H 1992. *The Distribution of Genetical Morphological and Behavioural Traits among the Peoples of Indian Region*. Delhi: Kamla-Raj Enterprises.

Bhasin MK, Walter H, Danker-Hopfe H 1994. *People of India: An Investigation of Biological Variability in Ecological, Ethno-economic and Linguistic Groups*. Delhi: Kamla-Raj Enterprises.

Landsteiner, K., and Wiener, A.S., (1940). An agglutinable factor in human blood recognized by immune sera for rhesus blood Proc. Soc. exp. Biol N.Y. 43, 223.

Mourant AE, Kopec ADA, Domanieswska-Sobezek K 1976. *The Distribution of the Human Blood Groups and Other Polymorphisms*. 2nd Edition, London: Oxford University Press.

Race RR, Sanger R 1962. *Blood Groups in Man*. 4th Edition, Oxford: Blackwells.

Thurston, (1909). *Castes & Tribes of India*.