

GLO I Polymorphism in Two Tribal Populations of Andhra Pradesh

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INTRODUCTION

The Glyoxalase enzyme system, transforms methyl glyoxal into lactic acid through a two-step reaction, catalysed by GLO I and GLO II (Knox, 1960). GLO I catalyses the conversion of methyl glyoxal and glutathione into S-lactoyl glutathione, whereas GLO II converts S-lactoyl-glutathione to glutathione and lactic acid. Gene for GLO I is located on short arm of chromosome number 6. Polymorphism of this enzyme was first reported by Kompf et al. (1975). In addition to the two common alleles *GLO*1* and *GLO*2* there are other variants like *GLO*3* *GLO*4*, *GLO*5* etc. The distribution of GLO I among the Indian populations has been reviewed by Ghosh (1977), Busi et al. (1979) and Chahal et al. (1986).

The Lambadis are also called by different names like Sugali, Brinjari, Sukali and Banjara etc. They rarely mix with other tribes. They are a class of traders, herdsman, cattle breeders collecting fire wood and jungle produce.

The Chenchus or Chentsus are the most primitive Telugu speaking tribe. They are semiwild, innocent, inoffensive hill tribe, living

on roots, honey and wild fruits.

Racially the Lambadas are Caucasoid (Aryan) in origin while the Chenchus are Australoid (Dravidian).

The sample is drawn from the Lambada and Chenchu populations residing at villages near Mannanoor of Mahabubnagar district of Andhra Pradesh.

MATERIALS AND METHODS

Blood samples were collected from 106 unrelated individuals of different age groups with reference to both sexes out of which 52 were Lambadas and 54 were Chenchus.

GLO I typing was performed as described by Pflugshaupt et al. (1978) and the zones of enzyme activity were detected by the staining technique of Parr et al. (1977).

The allele frequencies were estimated by gene counting method.

RESULTS AND DISCUSSION

About 106 samples were tested for the enzyme GLO I variation. Out of which 52 were Lambadas

Table 1: Variation of Glyoxalase I enzyme among Lambadas and Chenchus

Population	N	No. and % of Phenotypes			Allele frequency	
		1-1	2-1	2-2	<i>GLO*1</i>	<i>GLO*2</i>
Lambada	52	-	15	37	0.1442	0.8558
Chenchu	54	0.00	28.85	71.15	$\chi^2_i = 1.334$	30 > p > .20
		5	25	24	0.3241	0.6759
		9.26	46.30	44.44	$\chi^2_i = 0.249$	70 > p > .50

Table 2: GLO I system among tribal groups of Andhra Pradesh

Population	N	Allele frequency		Reference
		<i>GLO*1</i>	<i>GLO*2</i>	
Lambada	52	0.1442	0.8558	Present study
Chenchus	54	0.3241	0.6759	Present study
Koyas	102	0.2010	0.7990	Chahal et al., 1981
Koya Doras	97	0.2061	0.7939	Veerraju et al., 19982
Konda Kommaras	110	0.1773	0.8227	Veerraju et al., 1982
Manne Doras	116	0.3060	0.6940	Ramana, 1991
Naikpods I	108	-	1.0000	Muralidhar et al., 1989
Naikpods II	112	-	1.0000	Muralidhar et al., 1989
Naikpods III	113	-	1.0000	Muralidhar et al., 1989

and 54 Chenchus. The results are given in table 1.

Out of 52 samples of Lambadas majority of them (37) showed 2-2 type. Interestingly the rest of them (15) showed 2-1 but not even a single case of 1-1 was detected.

Coming to Chenchus out of 54 samples, 2-1 and 2-2 are almost in equal number i.e., 24 and 25, respectively.

Both the populations are in Hardy-Wienberg equilibrium, for this system. The chi-square test for heterogeneity is found to be significant ($\chi^2_2 = 9.04$, .02 > p > .01)

Data regarding the distribution of glyoxalase I polymorphism is limited. The comparative data on tribal populations of Andhra Pradesh for GLO I enzyme variants is given in table 2.

The *GLO*1* allele is highest in Chenchus (32.41%) while it is lowest in Lambadas with 14.42% . In Naikpod tribes the *GLO*1* allele is totally absent (Muralidhar et al., 1989).

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KEY WORDS GLO I Polymorphism. Lambadas. Chenchus. Andhra Pradesh.

ABSTRACT The paper presents the distribution of glyoxalase (GLO I) phenotypes and allele frequencies in

Lambadas and Chenchus of Mahaboobnagar district, Andhra Pradesh.

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