

GLO 1 Polymorphism in Chettibaliya and Nagavamsam of Visakhapatnam, Coastal Andhra Pradesh

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ABSTRACT The distribution of glyoxalase (GLO 1) phenotypes and allele frequencies in Chettibaliya and Nagavamsam of Visakhapatnam, Coastal Andhra Pradesh (South India) is reported.

INTRODUCTION

Glyoxalase 1 (GLO 1 – E.C. 4.4.1.5) catalyses the first step of the conversion of methylglyoxal into lactic acid (Knox, 1960) and the polymorphism of this enzyme was reported by Kompf et al. (1975).

The distribution of GLO 1 polymorphism among Indian populations has been reviewed by Ghosh (1977), Busi et al. (1979) and Chahal et al. (1986). The aim of this report is to provide GLO 1 phenotype and allele frequency data in two endogamous caste populations, namely Chettibaliya and Nagavamsam of Visakhapatnam from the South Indian State of Andhra Pradesh.

MATERIAL AND METHODS

Blood samples were collected from a total of 300 randomly selected unrelated healthy adult individuals of both sexes viz., Chettibaliya (132) and Nagavamsam (168) residing in different localities of Visakhapatnam, Andhra Pradesh.

Electrophoresis was performed essentially as described by Pflugshaupt et al. (1978), and the zones of enzyme activity were visualised by staining technique of Parr et al. (1977). The allele frequencies were estimated by gene counting method.

RESULTS AND DISCUSSION

The distribution of GLO 1 phenotypes and

allele frequencies is shown in table 1. There were no significant differences between the observed and expected phenotypes numbers in either group (Nagavamsam : $\chi^2 = 0.1681$; d.f. = 1, $0.70 > p > 0.50$; Chettibaliya : $\chi^2 = 0.0163$, d.f. = 1, $0.90 > p > 0.80$) indicating that both groups were in Hardy-Weinberg equilibrium for GLO 1 locus.

Table 1: Distribution of GLO 1 polymorphism among two endogamous caste populations of Andhra Pradesh

Population	n	GLO 1 phenotypes			GLO 1 allele frequencies	
		1-1	2-1	2-2	GLO1*1	GLO1*2
Chettibaliya	132					
No. Obs.		7	46	79	0.2273	0.7727
No. Exp.		6.68	46.04	79.28		
Nagavamsam	168					
No. Obs.		10	66	92	0.2560	0.7440
No. Exp.		10.92	63.83	93.25		

Considering allele frequencies, the GLO 1*1 allele showed a little higher value among Nagavamsam (0.2560) than in Chettibaliya (0.2273) but the Chi-square test for heterogeneity revealed no significant differences between them ($\chi^2 = 0.7803$; d.f. = 2; $0.70 > p > 0.50$).

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