

Red Green Colour Blindness Among the Hakkipikkis: A Tribal Population of Mysore District, Karnataka

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ABSTRACT A study of defective colour vision was carried out among the Hakkipikkis of Mysore district of Karnataka state. It was found that the percentage frequency of red green colour blindness was 1.12%.

INTRODUCTION

Colour blindness is one of the extensively studied genetic marker in the study of human variation and it is an important genetic trait in the field of human genetics. It has been suggested that natural selection operates in higher intensity colour vision deficiency among many primitive populations. (Pickford, 1963; Roberts, 1967). In the present paper an attempt has been made to study the colour blindness among the Hakkipikkis of Mysore District.

MATERIALS AND METHOD

The present study was conducted on Hakkipikkis, a tribal population of Pakshirajpura of Hunsur taluk of Mysore district, Karnataka state. Hakkipikkis speaks a language which is a mixture of Gujarati, Hindi, Marathi and Rajasthani languages (Mann, 1980). All the Hakkipikkis irrespective of their location at different places and in smaller groups can distinctly be divided in to two social divisions; the *Mhoto* and *Nahno*. In the pattern of social stratification, the *Mhoto* division occupies a higher place. The descent of the family is patrilineal type. A preferred form of family in Hakkipikki society is the nuclear one. The joint family among the Hakkipikkis is a recent introduction, especially after their being colonized at one place and given land and houses.

Though the Hakkipikkis society is predominantly monogamous, the cases of polygamous union can also seen.

A total of 280 unrelated Hakkipikki individuals of both the sexes from Pakshirajpura village of Hunsur taluk in Mysore District, Karnataka State were examined for red green colour vision defect using Ishiharas (1980) isochromatic plates with a sufficient day light.

RESULTS AND DISCUSSION

Table 1 shows the distribution of colour blindness among the Hakkipikkis. Among the Hakkipikki males, the percentage of colour blindness has been found to be 1.12%. The frequencies of protan and deutan were found to be same (0.56%). No female colour blind is detected.

The frequency of colour blind males among Indian populations is 0.036 (varies from complete absence to 0.231 among Kshatriyas of Andhra Pradesh). The frequency is lowest among scheduled tribes (0.026, varies from complete absence to 0.128 among Todas of Tamil Nadu studied by Clements, 1930) as compared to other ethnic groups—scheduled caste (0.035), community (0.045) and caste (0.049) and almost similar pattern is also observed from different zones of India (Bhasin et al., 1994; Bhasin and Walter, 2001).

From South India, the frequency of colour blinds is high (0.040, varies from nil to 0.231) and the frequency is uniform in all the States and Union Territory. Among scheduled tribes of this zone the frequency is low (0.030) as compared to other groups. Among the ethnic groups, the lowest frequencies are observed among scheduled tribes, followed by scheduled castes as compared to communities and castes. It has been observed that overall frequency of colour vision defects has been observed low among scheduled tribe groups (traditionally food-gatherers and hunters and later occupied in shifting cultivation and as agricultural labourers) from all the zones and India followed by scheduled caste groups (about 90 per cent of scheduled castes are agricultural labourers) which is followed by caste groups. The same pattern has been observed in lower occupation groups, like

Table 1: Incidence of red green colour blindness among Hakkipikkis

Sex	Number	Normal		Colour blind		Protan type		Deutan type	
		No.	%	No.	%	No	%	No	%
Male	180	178	98.88	2	1.12	1	0.56	1	0.56
Female	100	100	100.00	-	-	-	-	-	-

the animal husbandry group as compared to the higher ones *e.g.* priesthood, warfare and trade and commerce groups. This observation perfectly fits into the hypothesis proposed by Post (1962) and Pickford (1963) after Bhasin et al. (1994) and Bhasin and Walter (2001)

The model of Post (1962) and Pickford (1963) explains satisfactorily the status of colour blindness in tribal population groups. As long back as 1963, Pickford put forward an explanation regarding the high incidence of colour vision deficiency among Brahmans and other caste groups of India stating that the higher castes are further removed from hunting and food gathering than the lower castes. Some of the tribal populations of India (for frequencies distribution see Bhasin, Walter and Danker-Hopfe, 1992) reveal high frequencies of colour vision defects. Although the high percentage of inbreeding and settled agricultural economy etc. are the reasons given to explain the prevalent high frequency of colour blindness in these populations, the validity of the theory of relaxation of selection will have

to be substantiated by further studies and more quantitative data (Bhasin et al., 1994, Bhasin and Walter, 2001)

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