Rec. zool. Surv. India : **97** (Part-1) : 49-50, 1999

SEX-LINKED INHERITANCE (FATHER TO SON) IN THE HOUSE RAT, *RATTUS RATTUS ARBOREUS* (HORSFIELD) IN INDIA

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INTRODUCTION

The authors studied some aspect of ecology of the House Rat, *Rattus rattus arboreus* (Horsfield) at Apurbapur village of Singur, 34 km northwest of Calcutta in Hugly District, West Bengal. During this study, out of a total of 540 (M) and 661(F) specimens examined, they came across 23 male specimens of the house rat in which the anal aperture was deviated towards the right side of the ventral aspect of the tail. The immediate effect of this abnormal position of the anal aperture was on the scrotal sac in which the right testicle had shifted somewhat upwards and the entire scrotal sac towards the left side.

Developmental anomaly in limbs, teeth, hair, colour and mammae are not very uncommon among rodents particularly among murids (rats and mice) in India (Ghosh, 1981, Chaturvedi, 1966; Chakraborty and Ghosal, 1971; Khajuria, 1951; Bhattacharyya 1973; Mandal and Ghosh, 1980). To ascertain whether the anomaly in the position of the anal aperture in the male house rats is sex-linked, the following experiment was performed in captivity.

Two pairs (young and aged, comprising of male with abnormal anal aperture and normal female) of this rat were kept in wire cages (58 cm x 33 cm x 48 cm) separately, with food and water at adlibitum for breeding. The younger pair bred successfully and gave birth to three ratlings after 49 days of captive-life. The older pair did not bread till 147 days of captive-life. One morning it was a great surprise to see that the adult rats were eating one of the ratlings (M) which was about two months old (62 days). The brain of the victim including a small portion of the abdomen was devoured. Subsequently, the anterior portion of other two ratlings (2 F) were also devoured by the adult rats. The body of the ratlings (1 M, 2 F) were examined. It was found that the anal aperture of the male ratling (62 days old) was shifted towards the right side of the tail. However, the subsequent distorted nature of scrotum and testicles could not be observed as the same were undeveloped. In case of both female ratlings, the anal aperture was in normal position, situated at the midventral position of the tail. Moreover, out of 661 (M) specimens examined from the same area, not a single female specimen showed this type of abnormality of the anal aperture. Since, the F_1 ratlings (1 M, 2 F) were devoured

by adult rats, the authors had no scope of studying the F_2 generation of these rats.

However, from the above experiment it may be concluded that the abnormal position of anal aperture in males is 'Y' linked and hence, it goes from father to son only. There is no report of the 'Y' sex-chromosome linked inheritance in Indian murine rodents (Dr. Ishwar Prakash, personal communication). Hence, it was thought worthwhile to report it here. This type of inheritance is known in human beings where hypertrichosis on the pinna is a 'Y' chromosome linked Character (Winchester, 1967) which goes from father to son.

ACKNOWLEDGEMENTS

The authors are thankful to the Director, Zoological Survey of India, Calcutta, for providing facilities for the work and to Dr. V. C. Agarwal, Emeritus Scientist, Z.S.I., Calcutta, for going through the manuscript and valuable suggestions.

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