CONSTITUTIVE HETEROCHROMATIN IN THE INDIAN BUSH RAT, GOLUNDA ELIOTI (GRAY)

THE chromosomes of the Indian bush rat, Golunda elioti (Gray) have been studied by Mathhey\(^4\) who reported the diploid number as 52. Later, Mittal & Kaul\(^5\) reported the diploid number for this species from Ludhiana (Punjab) as 50. We have studied the chromosomes of Golunda elioti (Gray)\(^2\) collected near Mysore and our observations are at variance with those of the earlier reports.

Twelve individuals (6 males and 6 females) were collected from the environs of Kadakola village (8 kms. from Mysore, S. India). Bone marrow, spleen, intestinal epithelium and testis were utilized for chromosome preparations. Spleen, liver and kidney cells were directly fixed in acetic acid-methanol for sex chromatin screening. C-banding was done according to the technique of Sumner\(^7\).

The diploid number was 54. The chromosomes were measured and classified according to the system of Levans et al\(^8\). The karyotype (Fig. 1) consists of one pair of small metacentric and twenty-five pairs of telocentric chromosomes. The X-chromosome is sub-metacentric and measures 7.63% of the haploid genome; it is thus larger than the 'original' type according to the classification of Ohno et al\(^9\). The Y-chromosome is telocentric and measures 3.80% of the haploid complement. In C-banding (Fig. 2) all the autosomes irrespective of their size showed dark and clear bands in the centromeric regions. In addition, heterochromatin was also seen at the telocentric regions of a few autosomes. The sub-metacentric

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Fig. 1. Karyotype of Golunda elioti (Gray), male, \(2n = 54\).

Fig. 2. C-banded metaphase of Golunda elioti, male.
X-chromosome showed a dark and prominent band at the centromeric region with an additional dark band on the short arm adjacent to the centromeric band. The Y-chromosome was uniformly stained throughout its length and is C-positive. In the interphase nuclei of cells from spleen, liver and kidney tissues of females 8 to 12 chromocentres are seen in each nuclei. The size of these chromocentres varies and the large masses that occur may be the fusion products of smaller chromatins bodies. These blocks of chromocentres interfere with the identification of X-chromatin.

With the three different diploid numbers reported for this species, viz., $2n = 52^1$, $2n = 50^3$ and $2n = 54$ of the present study, this species can be considered as polymorphic. The presence of an easily identifiable sub-metacentric X-chromosome and a large Y-chromosome in the karyotype of G. eliotii are interesting. Since the X-chromosome measures $7.63\%$ of the haploid genome it is larger than the 'original' type. However, the intercalary C-band measures $34\%$ of the X-chromosome indicating that the functional part is probably restricted to $5\%$ of the haploid genome as in other mammals.

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Department of Zoology, S. KRISHNA RAO.
University of Mysore, N. V. ASWATHANARAYANA.
Manasagangotri, Mysore 570 006, India.
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SOME NEW DISEASES OF FRUITS

This note presents an account of some new diseases of fruits collected from Bangalore market.

Avocado (Persea americana Mill)

1. Fruit rot (Dothiorella gregaria): The fungus produces brown spots on the fruit, covering the entire fruit surface. The flesh inside the fruit is discoloured.

2. Stem end rot (Diplodia natalensis P. Evans): Rot usually appears at the stem end and spreads rapidly invading the whole fruit. The pulp of the diseased fruit turns dark brown and soft.

Mango (Mangifera indica Linn.)

3. Fruit rot (Sclerotium rolfsii Sacc.): Fruit rot appears in the form of dark grey lesions on the fruit surface on ‘Alphonso’ variety.

In addition to the three diseases described on fruits, during the course of routine disease surveys conducted at the experimental station of this Institute, Parasitization of pustules of rust was observed during February-March, 1977 on ‘Bangalore Blue’ variety of grape (Vitis–Labrusca L.). Uredial pustules of the rust were covered with a pinkish white fluffy mycelium. The fungus was isolated in pure culture and was identified as Trichotheccium roseum Link Pathogenicity tests with this isolate were conducted successfully. This is the first report of the occurrence of Trichotheccium roseum Link on uredopustules of grape.

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Division of Plant Pathology, T. S. SRINIVAS.
Indian Institute of Horticultural Research,
255, Upper Palace Orchards,
Bangalore 560 006.