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MITOTIC PROFILE OF GENOME IN *TURNIX SUSCICATOR*

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Abstract: Genetic surveillance of Common Bustard Quail, *Turnix suscicator (Gmelin)* was conceded in both the sexes. The chromosomes were harvested from bone-marrow cells of previously colchicinized adult individuals. The cell plates were prepared as per system proposed by Rothfels & Siminovitch (1958).In all, ninety seven well spread metaphase plates were examined and the modal diploid number was found to be 82. This count was indicated by 31.96% of the cells scored. Specific individualization of sex chromosomes could not be done as both the sex chromosomes, Z & W were short of morphological heterogeneity

Keywords: Genetic Surveillance, Diploid Count, *Turnix suscicator*, Chromosome, Metaphase

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INTRODUCTION

During the past two millennium, 1/5th of the bird fauna have been eliminated worldwide as an aftermath of ecological transformation and infringement of avian territories by homonids. Despite imminent danger for myriad bird fauna to join the list of 'endangered' or 'threatened' forms, nothing is known about their cytogenetic framework (Garg & Garg, 2002). Of 8,948 species of extant birds 802 have been karyotyped so far, which serve chromosomal information for less than 8% of the global bird fauna (Garg & Shrivastava, 2013 a, b). In order to explore the genetic make-up of some new avian taxa and to validate their taxonomical affinity, nine specimens of Quail have been subjected to karyological examination.

MATERIAL & METHOD

The bird - Common Bustard Quail, *Turnix suscicator (Gmelin)* belongs to Family - Turnicidae of the Order - Gruiformes. Six male and three female specimens were procured from different parts of the state. The individuals were anaesthestized at the site itself and their bone marrow, extracted through a sternal puncture, were brought to the laboratory for further treatment. The cell plates were prepared after Rothfels & Siminovitch (1958) with certain revisions. Classification of chromosomes, based on the situation of centromere, was done according to Levan *et.al*. (1964).

RESULTS

In all, 97 well spread metaphase compliments were counted. The diploid number of chromosomes for the species was determined to be 82+4 which was indicated by 31.96% of the total cells scored. There were four pairs of macrochromosomes, including the sex-elements. On the basis of arm ratios, the macrochromosomes were arranged in two groups :

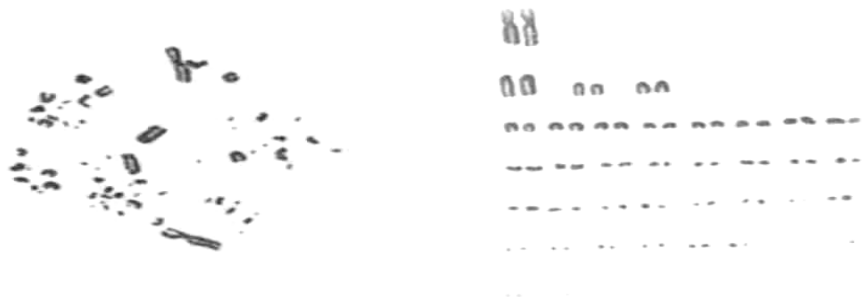

Fig – 1 : Metaphase plate & karyotype of *Turnix suscicator* (male)

Group I comprised a single pair of chromosomes (chromosome 1) with a submedian centromere. This pair, more than double the length of any other macrochromosome in the karyotype, could be easily identified. It was 6.42µ long, constituting 46.21% of the TML.

Fig - 2 : Metaphase plate & karyotype of *Turnix suscicator* (female)

Group II included three pairs of telocentric elements (chromosomes 2, 3 and 4). Chromosome 2 was 3.52µ long (constituting 25.20% of the TML) whereas chromosomes 3 and 4 lacked bimodality with respect to size and have been arbitrarily arranged. As all the macrochromosomes were aligned (*sensu stricto*), in both male as well as female partners, it became difficult to make specific individualization of sex-chromosomes.

The remaining thirty seven pairs formed a distinct size group with identical morphology and hence they have been included in the category of microchromosomes.

DISCUSSION

In most of the gruiforms, macrochromosomes were either submetacentric or subtelocentric (Gruidae, Peophiidae – Sasaki & Takagi, 1981; Belterman & De Boer, 1984) but in present species, all the macrochromosomes, except the largest one, were telocentric. This was in agreement with the karyotype of *Cariama cristata* (Belterman & De Boer, 1984) and *Chunga burmeisteri* (Sasaki & Takagi, 1981). But, *C. cristata* (2n=107) and *C. burmeisteri* (2n=108) had exceptionally high diploid count with steady decline in size from the largest macrochromosome to the smallest microchromosome. On the other hand,

there was a striking demarcation between macro- and micro-chromosomes in *T. suscicator.*

In the present species, it was difficult to delineate the Z or W chromosomes which are quite conspicuous in its congeneric species, *T. tanki* (Bian *et al*. 1988). It was only due to this reason, the karyotype of the present species cannot be drawn from any of its close kin.

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