

## Abstract

The karyotype, the set of all chromosomes in a cell, is an important characteristic of individual species of both animals and plants. The karyotype of birds is typically stable in terms of the number of chromosomes and their size, and rearrangements between different chromosomes are rare. The changes that occur between the karyotypes of avian species are more often intrachromosomal, such as inversions or duplications and deletions. It is still unclear how often such changes occur between closely related species and whether they can contribute to speciation. This work aims to compare the karyotypes of a total of five closely related species of songbirds of the genus *Lonchura* (munias and mannikins). Comparing chromosomal changes in such recently diverged species allows us to observe changes that might contribute to speciation. The study is based on karyotype analysis by immunofluorescence staining of synapsed pachytene chromosomes and subsequent identification and comparison of chromosome types. This method allows determination of the changes that are manifested by pericentric inversions where the position of the centromere is changed. The results confirm the general idea of avian karyotypes as very conservative in terms of chromosome number and their sizes. However, in some chromosomes we observed a change in a centromere position, which might be caused by pericentric inversions. In four of the five species studied, synapsed chromosomes with two different simultaneous centromere positions were observed. This might be an intraspecific polymorphism in pericentric inversion on the chromosomes or *de novo* origin of new centromere. The results suggest that changes in centromere position most likely caused by pericentric inversions could be relatively frequent among closely related species and might thus contribute to reproductive isolation between species.

**Key words:** karyotype, chromosome, inversion, evolution, speciation, polymorphism, *Lonchura*, munia, mannikin