

Abstract

Squamate reptiles in general possess an unusual variability in karyotype and sex determining mechanisms. However, in these two aspects, iguanas (Pleurodonts) are considered as a relatively conservative group of lizards. So far only genotypic sex determination with male heterogamety has been detected in this lineage. However, the sex chromosomes have not been revealed in many species by classical cytogenetics, probably due to their homomorphy. Significant variability in karyotype was observed only in the species-rich genera *Anolis*, *Sceloporus* and *Liolaemus*. The aim of this thesis was to investigate the genome of available species from the main iguanid lineages using classical and molecular cytogenetic methods. As well as finding the karyotype characteristics, which may represent synapomorphies of main iguanid lineages, the other aim was to try to identify sex chromosomes.

This study confirmed previously published karyotypes of 13 species and established new descriptions of karyotype for eight species. The chromosomes of all studied specimens were examined by methods of classical and molecular cytogenetics, 21 species covering eight iguanid families were analysed in this thesis. The majority of studied species shared the apparently ancestral karyotype of the group, with diploid chromosome number $2n=36$. Examination of the heterochromatin distribution and the presence of interstitial telomeric sequences (ITS) on chromosomes have revealed considerable variability in the distribution of signals. However, the selection of analysed species did not allow an explanation of observed variability by phylogenetic species position. For the first time, the accumulation of heterochromatin in five iguanid species was detected on the previously described sex chromosome Y. Four were neo-sex Y chromosomes in anoles. The members of family Opluridae share a nearly uniform pattern of heterochromatin distribution and ITS which may be a synapomorphy of this lineage. The heteromorphy in the size of the smallest pair of microchromosomes was noticed in the male karyotypes of species *Oplurus fierinensis* and *O. grandidieri*. As this heteromorphy was not apparent in female karyotype, it can therefore implicate sex chromosomes.