

Abstract

The class Arachnida is not thoroughly explored from the cytogenetic point of view. Previous studies suggest a high diversity of karyotypes and sex determination in arachnids. This study deals with the evolution of sex chromosomes, nucleolar organizer regions (NOR), and telomeric repeats in the tetrapulmonate clade of arachnids, particularly in groups of ancient origin. Sex chromosomes were detected in two orders. Detection of NORs in a large set of species supports the hypothesis that the ancestral karyotype of arachnids contained NOR on one pair of autosomes only. The number of NORs has increased during the evolution of some groups of Pedipalpi. The NORs are located in terminal or subterminal chromosomal regions in most tetrapulmonates. The occurrence of the “insect” telomeric motif was confirmed in majority of tetrapulmonates. Interstitial telomeric repeats were not detected with the exception of one species.

Keywords: arachnids, meiosis, sex chromosomes, telomeres, nucleolar organizer, heterochromatin