

## Synaptic behavior of *Leptodactylus pentadactylus* (Anura: Leptodactylidae) by immunolocalization of proteins

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### Abstract/Resumo

Most species of the genus *Leptodactylus* share similar karyotypes, with  $2n=22$  and  $NF=44$ . The species *L. pentadactylus* presents a multivalent in its karyotype, resulting from multiple translocations, forming a ring chromosome during meiosis I. In this study analyzed the meiotic behavior of *L. pentadactylus*, from Brazilian Amazonia, through immunoprotein markers. Testicular tissues of an adult male were collected and analyzed by immunofluorescence microscopy, using antibodies to detect the following meiotic proteins: SMC3, component of chromosomal axis, and responsible for cohesion between sister chromatids;  $\gamma$ -H2AX in a protein marker of meiotic silencing of unsynapsed chromatin (MSUC). The results showed that: in leptotene, SMC3 and  $\gamma$ -H2AX mark fuzzy segments throughout all the chromatin; in the zygotene; regions that start synapses are intensely marked by  $\gamma$ -H2AX; in turn, with the advancement of the synapse at the end of the zygotene,  $\gamma$ -H2AX markings expand evenly in the chromatin; in pachytene, the synapsis remains incomplete, and several asynaptic regions were noted, with  $\gamma$ -H2AX markings more intense on synapsed regions of chromosomes involved or not in multivalent links; in diplotene, the synaptonemal complex is disorganized, SMC3 cohesin is present on partially decondensed, chromatin, and  $\gamma$ -H2AX markings are present only in some regions; in diakinesis, SMC3 maintains the same pattern of diplotene, however,  $\gamma$ -H2AX markings are quite reduced. The results of meiotic behavior of *L. pentadactylus* show asynaptic axes in pachytene, which probably do not present homology with each other, corresponding to segments that suffered multiple rearrangements. SMC3 pattern and reduction of  $\gamma$ -H2AX markings in diplotene, suggest decondensation of chromatin, with reactivation of transcription in chromosomal handles. The absence of  $\gamma$ -H2AX markings in diakinesis show that the rearranged chromosomes of *L. pentadactylus* do not compromise the spermatogenesis of the animal, ensuring its meiotic dynamic and fertility.

Keyword/Palavras-chave: Meiosis; Synaptonemal complex; Immunofluorescence

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