Abstract

Oxymonads are a group of flagellate protists living in low oxygen environments - mainly the guts of insects and vertebrates. In this study, we focus on the analysis of ploidy and karyotype of various species of oxymonads using Fluorescence *In Situ* Hybridization (FISH) with probes against single copy genes and telomeric repeats as well as estimating the DNA content in the nuclei of these oxymonads using flow cytometry. Using specific FISH probes against SufDSU gene, which is present in a single copy in the haploid genome, we showed that all studied strains are probably haploid. From the genome of *Monocercomonoides exilis* strain PA203 we know that oxymonads have the ancestral type of telomeric repeat (TTAGGG). Using a probe against these repeats we tried to label chromosome ends and estimate the number of chromosomes for seven strains (five species) of *Monocercomonoides.* With a single exception, the average number of signals per nucleus was below 20 indicating number of chromosomes below 10. In the strains of *M. mercovicensis*, we observed much higher number of signals suggesting that the cells have much higher number of chromosomes. Finally, we established the DNA content for several strains using flow cytometry. We used as a standard *M. exilis* strain PA203 knowing that the haploid genome size is approximately 82Mbp. Results indicate that most of the strains have genomes smaller or similar to *M. exilis* except for *M. mercovicensis*, whose genome size is almost 130Mbp.

Key words: Oxymonads, FISH, ploidy, karyotype, DNA content, *Monocercomonoides*