Abstract

The use of candidate genes has become a widespread approach in the study of behavioral adaptations. Gene function is often maintained in very distant evolutionary lines. This approach allows us to extend knowledge about non-model species. I studied the influence of selection on candidate behavioral adaptation genes associated mainly with biorhythms. I was interested in comparing genetic variability between closely related species of songbirds from tropical and temperate zones. These environments differ mainly in the conditions stability. Tropical species live in very stable conditions with generally low seasonality, unlike temperate species. Timing of events of cirkanual cycle of temperate birds is essential because of the alternating of conditions of the environment. I therefore assumed a reduction in genetic variability in migrating temperate zone species compared to tropical species due to stabilizing selection. The study is based on analyzes of microsatellite loci in the exon region. I involved analysis of neutral microsatellites as a control for possible genetic variability reduction coming from different reasons than selection. Neutral microsatellites are expected to not be influenced by selection. In tropical species I found reduced genetic variability of neutral microsatellites. That might bet he reason I did not find the desired relationship of genetic variability of candidate genes in temperate species. In the second part of the thesis I dealt with two subspecies of the Red Bullfinch (Carpodacus erythrinus) and the relationship of its genotype and different migration routes. I assumed genetic differentiation in genes associated with migration behavior. This assumption has not been confirmed and my study has shown that these two subspecies (C. e. Erythrinus and C. e. Kubanensis) are not significantly genetically differentiated in candidate genes.