

ABSTRACT

Conditional ornaments play an irreplaceable role in sexual selection in a non-small part of sexually reproducing animals. Fastidiousness of generating and later also carrying of these ornaments, which show the condition of their wearer, burdens also metabolism on a non-small scale. This thesis tests the hypothesis of mutual addiction between conditional ornaments, as the indicators of qualities of individuals and metabolism, as the most significant source of free radicals which are responsible for oxidative stress. The real weight of influence of ornament fastidiousness on an organism, resp. on redox state, is tested in this thesis. Manipulations which were performed with individual males of model species should point how much the selected factors correlate each other. The barn swallow (*Hirundo rustica*) is the model species.

Analyses of dates collected during trapping which were realized in breeding seasons in 2012 and 2013 do not show any important trends between observing variables. This fact is confirmed by minimal differences and inconsistent variability of levels of measured antioxidants – oxidoreductases, superoxide dismutase and glutathione peroxidase. The marginal effect of manipulations with one of the conditional ornaments which are presented in model species supports the hypothesis of conditional ornaments as indicators of quality of individuals.

Due to the time of collecting of dates, the possibility of minimal influence of manipulations on an organism is appropriate to state. This possibility can be justified by energetic expensiveness of the breeding season and within related to possibility. This possibility is supported by these factors: effort to maximizing the inclusive fitness of males, nest or territorial defense or last but not least the expensiveness of parental care. How much these factors really affect the production of free radicals and how high is their variability during breeding and non-breeding season between migratory and sedentary species could be discovered by the future studies focused on biology of selected species.

Keywords: sexual selection, secondary sexual traits, costs of ornament expression, oxidative stress, antioxidant enzymes, signalling honesty