

Abstract

Sexual selection is one of main selective pressure affecting body size, and subsequently leads to the evolution of sexual size dimorphism (SSD). The eyelid geckoes, family Eublepharidae, are a monophyletic group with considerable variability in SSD, including both male-larger and female-larger species. In general, it was supposed that eyelid geckos are highly variable in presence of male combats and in complexity of male pre-copulatory behaviour, and that this variability in this conspicuous male behaviour may lead to differences in SSD. The aim of this study was to reveal relationships between the direction of SSD and presence/absence of tail vibration during precopulatory phase and male combat behaviour. Using behavioural testing, it was revealed that male combats are present in all tested species, even in species, where the absence of such behaviour was supposed so far. In several species, the strong effect of seasonality to male aggression was observed, which may play a role in the evolution of SSD. The evolutionary changes in the presence/absence of tail vibration during precopulatory phase were independent on changes in the direction of SSD, the presence of tail vibration seems to be ancestral state for these lizards. During the evolution of this group, the tail vibrations disappeared four times independently in lineages with both directions of SSD. In conclusion, no relationships between direction of SSD and males combat or tail vibration during precopulatory phase was revealed. In eyelid geckos, the direction of SSD is well correlated with total body size following Rensch's rule – species with larger body size have larger males, while species with smaller body size have larger females. Significant exception of this rule is the species *Aeluroscalabotes felinus*, which is as the only eyelid gecko exclusively arboricolous.

Key words: Eublepharidae, sexual size dimorphism, tail vibration, male aggression