

## Abstract

The introductory part of this thesis sums up the state of knowledge on aposematism and mimicry, the effect of aposematic and mimetic signals on spider predators, and cases when spiders do not receive but send such signals. Attachments of the thesis include four original manuscripts. In the first study, we presented jumping spiders (*Evarcha arcuata*, Salticidae) with different colour forms (red-and-black, yellow-and-black, white-and-black) of the firebug (*Pyrrhocoris apterus*, Pyrrhocoridae). Our goal was to compare reactions of the spiders to various intensity of aposematic signalization, expecting red-and-black coloration to have the strongest effect. Aversive learning of all colour forms was equally effective, but generalization of the learned avoidance to other colour forms was more effective after switch from less (white-and-black, yellow-and-black) to more (red-and-black) conspicuously coloured prey. When tested the next day, avoidance of the white-and-black prey got mostly forgotten. In the second study, we assessed little studied sensitivity of spiders to smells of unpalatable prey. After jumping spiders learned to avoid firebugs, most of them avoided the firebug smell, showing their sensitivity not only to optical, but also to chemical part of signalization of the unpalatable prey. In the third study, we approached spiders not only as receivers, but as senders of aposematic signalization. In two species of red-and-black ladybird spiders (*Eresus kollari*, *E. moravicus*) that are considered Batesian mimics (warningly signalling, but palatable prey), we attempted to specify their model – i.e., a species protected against predators and mimicked by the spiders. The key factors were relative abundances of species similar to ladybird spiders in their localities and degree of similarity between these species and ladybird spiders based on objective criteria (colour, coloration pattern, body shape, body size). The results have shown that the most likely model of the ladybird spiders is the seven-spotted ladybird (*Coccinella septempunctata*, Coccinellidae). In the fourth study, we used jumping spiders as model predators for analysis of mimetic relationship between larvae of two true bug species, the firebug and the Mediterranean red bug (*Scantius aegyptius*, Pyrrhocoridae). The composition of the red bug's secretion notably differed from that of the firebug and was slightly less effective against spiders. Nonetheless, avoidance learning was highly effective and the aversion was well memorable in both species. The generalization was only slightly asymmetric, favouring the red bug. Mimetic relationship between the species was therefore rather Müllerian, although under specific conditions, the firebug may be put into disadvantage due to weaker defence of the red bug and slightly asymmetric generalization. Altogether, the results reveal high complexity of spider reactions towards mimetic and aposematic signals and provide support for their further use in studies of these phenomena.