

Abstract

Eyespots are a striking feature in the colouration of many animals. These are spots of a circular shape, which in their external appearance subjectively resemble the eyes of vertebrates. In invertebrates, they are found in insects, crustaceans and molluscs, while they are most widespread in butterflies. Within vertebrates, eyespots are most common in fish. Among amphibians, they are found in frogs, but their occurrence has not yet been mapped in detail. Eyespots occur rather rarely in reptiles and birds, and only remotely similar patterns can be found in mammals. Current research on the function of eyespots more or less reliably demonstrates that they play an important role in defense against predators or in communication within intraspecific interactions. The eyespots can fulfill the anti-predation function in two ways. According to the intimidation hypothesis, eyespots serve to prevent a predator from attacking. However, it is not yet entirely clear whether the spots frighten predators because of their similarity to the eyes of dangerous animals, or whether predators avoid the spots because of their conspicuousness and contrast with the surroundings. According to the deflection hypothesis, eyespots attract predators, but they direct the attack away from vital parts of the prey's body. In addition, eyespots may also serve in a number of intraspecific interactions, especially in sexual communication and in agonistic fights.

Key words: eyespots, animal colouration, mimicry, intimidation hypothesis, deflection hypothesis, anti-predation strategy