Chapter 64

“Eye Spot” Mimicry

The pattern of colored spots on the pods of *P. humile* and *P. elatius* proposed to function as aposematic caterpillar mimicry (Lev-Yadun and Inbar 2002; Aviezer and Lev-Yadun 2015) could also mimic eyes, a character that was only recently suggested to operate as defense in plants (Aviezer and Lev-Yadun 2015) (Figs. 56.1, 56.3, 56.7, 56.8 and 56.15) but is well-known in animals (Cott 1940; Edmunds 1974; Ruxton et al. 2004; Stevens et al. 2007, 2008b; De Bona et al. 2015). In animals, the “eyespot” are often not more than circular features (Stevens et al. 2008b), but the resemblance to an eye, to a face with two eyes, or even to more than two “eyes” or more than a single face, can intimidate or startle potential predators (herbivores), since the “eyespot” indicate the probable existence of a bigger and maybe even extremely dangerous creature (see Wickler 1968; Edmunds 1974; Ruxton et al. 2004; Stevens et al. 2007; Janzen et al. 2010). However, it seems that two “eyespot” intimidate better than other numbers (Mukherjee and Kodandaramaiah 2015). It seems that concerning “eyespot”, and concerning the possible snake mimicry by certain *P. elatius* pods discussed below, both proposed mimicry types do not necessarily have to be exact (see Stevens et al. 2008b; Penney et al. 2012). There is no need to mimic eyes exactly, since the price of a mistake in identifying a very dangerous predator can be lethal (see Janzen et al. 2010) and it is better not to spend more time in close proximity to such a potential danger. The so-called “eyespot” that certainly defend in many cases from attacks, may operate not only as eye mimicry, but also by just being a salient stimulus, through neophobia (Stevens and Ruxton 2014).

Fully grown green and mature brown seed cones of *Pinus halepensis* and of various other pine species have conspicuous spots that look like eyespot (Fig. 14.3). In these cases the number of “eyes” depends on cone size, its cover by leaves or by other cones and with deterioration of the coloration with age. There are various other types of plant coloration that potentially mimic eyes, but never described.

Certainly, more descriptive, field and experimental work must be done in order to understand the scope of the phenomenon of “eyespot” in plants in general and in *Pisum* and other legume pods that show similar patterns of pod coloration (e.g., Lev-Yadun and Inbar 2002; Aviezer and Lev-Yadun 2015) in particular.