

BOLL. ACC. GIOENIA SCI. NAT.	Vol. 26	n. 345	pp. 413-414	Catania 1993
------------------------------	---------	--------	-------------	--------------

The difference between *Enoplognatha latimana* and *E. ovata* (Araneae: Theridiidae) in the total amount of pigment in black spots: an indication of selection at thermoregulatory level?

ENGEL R.

*Zoologisches Institut der Universität München
Seidlstr. 25, 80335 München, Germany*

The sibling species *E. latimana* and *E. ovata* both have black spots at the yellowish Opisthosoma. The number of spots ranges between 0 and 14. *E. latimana* prefers calcareous grassland as its habitat with high solar radiation, *E. ovata*, however, prefers shadowed areas with a high density of plants such as hedges.

On the one hand black pigments provide protection from UV radiation, but on the other hand they heat the body. So, due to their different exposition, a difference in the total amount of black pigment between both species would be expected.

To examine this aspect, adult *E. latimana* ♀♀ (n = 221) and *E. ovata* ♀♀ (n = 689) were collected in Langwied near Munich in July 1991.

They live there parapatrically and sympatrically. The spiders were killed, the number of spots and the relative total amount of the black pigment (= rTAP) were measured.

In *E. latimana* 63,7% of the animals had no spots, in *E. ovata* only 1,4%. Compared to *E. latimana* ($3,69 \pm 0,22$ rTAP \pm se), *E. ovata* ($16,52 + 0,29$ rTAP) has developed about four times more rTAP. To estimate the influence of the habitat on the rTAP, individuals of the two species were studied, differentiated according to their occurrence in hedge or "Magerrasen". Neither *E. latimana* nor *E. ovata* have a different rTAP in either habitat.

The reason for the difference in the relative total amount of black pigment is therefore principally an genetic one. "Bottleneck"-effects seem rather unlikely. Presumably *E. latimana*, which is exposed to intensive solar radiation, shows a proportionately lower number of spots

and lower rTAP, because otherwise it would overheat in summer. This means, that it would need to invest a lot of energy in thermoregulation. The spiders with more black and therefore less yellow pigment, may have an disadvantage in selection in areas of high solar radiation. Additional experiments should consider this hypothesis.