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Biodiversity - 2014: Influence of the season of birth on juvenile growth of Helix aperta snails submitted to controlled conditions of temperature and photoperiod

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Abstract

Body growth of Helix aperta snails was studied in laboratory conditions, from hatching to maturity, under four combinations of temperature and photoperiod (20°C, 16 hL:8 hD; 20°C, 8 hL:16 hD; 15°C, 16 hL:8 hD and 15°C, 8 hL:16 hD). The study of the growth is undertaken on three samples of snails all born in laboratory: the samples 1 and 2 were obtained from parents collected from nature in autumn and in spring respectively; the sample 3 was constituted of individuals of the fourth generation of parents reared in the laboratory.

The results show clearly that the season of birth have significant effect on growth of Helix aperta snails. The subjects from parents collected in spring, with heavier mean body weights at birth, have a faster growth compared with the individuals born in the laboratory and those from parents collected in autumn. Under the four different combinations of temperature and photoperiod, the end of the growth phase, which coincides with the onset of mating, marking the age of sexual maturity, was only of 21 weeks in sample 2 (born in spring) but of 23 weeks in sample 1 and 3. In fact, snails born in spring reached maturity and started to mate after 21 weeks of growth, while in samples 1 and 3, this was observed 2 weeks later.

However, at each of the four combinations of temperature and photoperiod used, even if the animals born in spring have faster growth than the other two samples, all weights obtained at the end of the growth phase are significantly similar. This suggests that the difference in the rate of juvenile growth in snails of the three samples affects the duration of the growth period but not the weight of the animals in adulthood.

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