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Poster Presentation P36

THE EFFECT OF INTRACAPSULAR MATERIAL ON RATE OF DEVELOPMENT AND JUVENILE SIZE IN FRESHWATER SNAIL Physella sp.

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This study analyzed the relationship between egg capsule volume, development rates and size at hatching (juvenile shell size) of Physella sp. (Phylum Mollusca). Physella is a freshwater mollusc which lays egg capsules within a gelatinous egg mass. The size of the capsule might be proxy for available food since Physella has a direct development, and is born as a juvenile. So, all the nutrients it acquires for development must come from the intracapsular material. Therefore, I hypothesize that as the size of the capsule increases, there will be more intracapsular nutrients in the capsule, which might lead to a bigger juvenile being born. Difference in size of egg capsules might not have an effect on development rates of juveniles since the difference in the amounts of intracapsular material would not lead to a different development rate. In this study three egg masses from each of ten different snails were collected. When the egg masses were laid, the dimensions of each capsule within each mass were measured and the volume calculated. The volume of the juvenile was found at hatching by measuring its dimensions. Development rates were measured as the time for the following structures: eye, shell, heart, foot and tentacles to develop and hatching. We found a statistically significant and positive relationship between capsule volume and rate of development ($p=0.007$, $n=126$), but this was attributable to a single snail with an unusually rapid development rate. When this individual was removed from the data set, no significant relationship between capsule volume and rate of development was found. We found an overall significant relationship between egg capsule volume and juvenile volume ($p=0.039$, $n=126$), but we did not find a significant relationship for each of the offspring of individual snails. Also, there was no significant relationship between rate of development and size at hatching. As a result, we found that although larger amount of intracapsular material available would give rise to a juvenile of bigger volume, it does not develop at a different rate.