Post-embryonic development of the sub-social spider *Anelosimus cf. studiosus* (Araneae, Theridiidae)

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Summary

Post-embryonic development has been studied exclusively in solitary spiders. Sociality could minimise development inside the egg-sac, because premature spiderlings would be cared for cooperatively. Here, we describe the post-embryonic development of a Uruguayan sub-social spider, *Anelosimus cf. studiosus*. Fifteen egg-sacs were removed from their mothers, opened and the eggs raised in humid chambers. Nine females with their egg-sacs were kept as controls. Three consecutive instars were observed: prelarva, larva and nymph. Prelarvae were detected on average 16.58 days after oviposition, and moulted to larvae 1.38 days later. The larval period lasted 2.85 days before mouthing to the first nymphal instar, giving a total of 20.73 days on average after oviposition. Spiderling emergence from the egg-sac of immature spiderlings which would be unable to survive by themselves in other conditions. This would involve a shorter development time inside the egg-sac (few and/or brief instars) compared with solitary spider species.

The genus *Anelosimus* is one of a few genera of spiders that contain solitary, subsocial and social species. Sub-social spiders provide good models for investigating potential selection pressures that could have been involved in the evolution of sociality. *Anelosimus cf. studiosus* is a sub-social spider from Uruguay which is part of the “*studiosus* group”. This species is very close to *A. studiosus* (Hentz) and its taxonomic status is now under revision (I. Agnarsson, in litt.).

In this paper we describe the post-embryonic development of *Anelosimus cf. studiosus*. As far as we know, there are no previous analyses of post-embryonic development of the sub-social spider *Anelosimus cf. studiosus* (Araneae, Theridiidae). Fifteen egg-sacs were removed from their mothers, opened and the eggs raised in humid chambers. Nine females with their egg-sacs were kept as controls. Three consecutive instars were observed: prelarva, larva and nymph. Prelarvae were detected on average 16.58 days after oviposition, and moulted to larvae 1.38 days later. The larval period lasted 2.85 days before mouthing to the first nymphal instar, giving a total of 20.73 days on average after oviposition. Spiderling emergence from the egg-sac of immature spiderlings which would be unable to survive by themselves in other conditions. This would involve a shorter development time inside the egg-sac (few and/or brief instars) compared with solitary spider species.

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Fig. 1: Hatching prelarva of *Anelosimus cf. studiosus*, tearing the chorion.