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Adding to the Reproductive Biology of the Parthenogenetic Oribatid Mite, Archegozetes longisetosus (Acari, Oribatida, Trhypochthoniidae)

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Abstract: The oribatid mite, Archegozetes longisetosus, serves as a chelicerate model organism due to its relatively short life cycle and ease of laboratory culturing. It is a parthenogenetic species and all cultures recently used in different laboratories are descendants of a single female collected in 1993. While aspects of its developmental and functional biology have been published, knowledge of its reproductive rate and reproductive system is meager, and data on its life history are contradictory. Herein, we present the gross morphology of the reproductive system as obtained by SEM techniques and X-ray synchrotron microtomography, a new tool for studying mite anatomy. We investigated its reproductive rate by isolating 48 females from cultures and observing reproduction and development at 23 °C. Females repeatedly laid eggs in clutches containing 2-30 eggs. Within 51 days, each female produced, on average, 55 offspring with a maximum of 147. The reproductive rate averaged 1.3 eggs/day.

Key Words: Archegozetes longisetosus ran, Oribatida, reproduction, parthenogenesis, reproductive system, development, X-ray synchrotron microtomography, life history

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