

## Impact of Purple Nonsulfur Photosynthetic Bacteria on the Viability, Growth and Reproduction of *Daphnia magna*

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Very little is known about the ability of the purple nonsulfur photosynthetic bacteria to produce the physiological activation materials and stimulate the physiological activity of other organisms. In this study, the potential for *Rhodobacter sphaeroides* to act as a physiological activation materials of water flea, *Daphnia magna* was tested under the two different culture conditions, i.e. YTC including *Selenastrum capricornutum* as a green microalgae, and YTC including *R. sphaeroides*. The impact of *R. sphaeroides* was assessed by the viability, growth and reproduction of *D. magna* until third generation. In comparison with *S. capricornutum*, we did not show significant differences for the viability and growth of *D. magna* under the feed condition with *R. sphaeroides*. However, the age at maturity, meaning birth to first reproduction, was continually shortened according to successive generation, and at third generation used by *R. sphaeroides*, it was 4 days reduction of the age at maturity comparing that by *S. capricornutum*. The data provide strong evidence that *R. sphaeroides* have the potential to substantially increase the physiological activity of *D. magna*.