CYANOBACTERIA-RICH DIET REDUCES GROWTH RATES OF THE HYACINTH SILTSNAIL *FLORIDOBIA FLORIDANA* (GASTROPODA: HYDROBIIDAE)

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ABSTRACT

The freshwater gastropod genus *Floridobia* comprises 13 species in Florida, 11 of which are endemic to unique freshwater springs. Recent overgrowth of mat-forming filamentous algae and cyanobacteria in Florida spring runs could negatively impact growth, reproduction, and ultimately, the persistence of these native snail species. To determine the effect of nuisance cyanobacteria on siltsnail growth, we fed a cosmopolitan species, *Floridobia floridana*, diets composed of algae commonly found in Florida springs. Diets consisted of a) the cyanobacteria *Lyngbya* sp., b) a non-cyanbacteria control consisting of the eukaryotic yellow-green alga *Vaucheria* sp., and c) a mixture of both species. We predicted snails fed *Lyngbya* would have reduced growth due to low highly unsaturated fatty acid (HUFA) content. Snails fed *Vaucheria* were predicted to have an intermediate growth rate, and the highest growth was predicted for the mixed diet because multi-algal diets typically provide superior nutrition for grazers. Snails in all treatments were fed equal carbon content weekly for a period of 15 weeks. At the conclusion of the study, snails fed *Lyngbya* or *Vaucheria* had reduced relative growth rates compared to those fed the mixed diet (p = 0.0002). Reduced growth rates most likely resulted from poor nutritional content of *Lyngbya*, although cyanobacteria cell morphology may have also played a role. Our study suggests that though *Vaucheria* may provide adequate nutrition, continued increases in the standing crop of cyanobacteria in Florida springs could threaten the persistence of endemic siltsnails. Efforts to preserve the integrity of these springs should therefore focus on limiting cyanobacteria blooms.

KEY WORDS freshwater springs, gastropod, filamentous algae, Lyngbya, Vaucheria