Photic Effects on Venus Flytrap Closure

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Abstract:

Venus flytraps (*Dionaea muscipula*) have evolved to be carnivorous plants due to their general abundance in nutrient poor areas, relying on sunlight and insects as their main sources of energy. Light exposure has been shown to have effects on Venus flytrap development and metabolism regulation. Given this information, it is hypothesized that increased light exposure to Venus flytraps will result in faster closure times. Three venus flytrap plants, with traps ranging from small, medium and large sizes, were exposed to 6 hour, 12 hour or 18 hour light treatments respectively. Trials of 24, 48, and 69 hour trials were conducted and closure times were recorded. Findings showed that there was a significant difference between the closure times of Venus fly traps exposed to various treatment lengths (6, 12, 18 hrs) and of various sizes (small, medium, large). These results show that increased exposure to sunlight (18 hr) led to greater photosynthetic rate, and thus a greater energy storage utilized for faster trap closure times. Additionally, a 24-hour trial period was optimal, likely because excessive exposure to the treatment conditions led to trap dysfunction and dehydration. From an ecological standpoint, these findings are important because they can help fuel further studies on the energy usage and growth of flytraps. Future experimentations with this focus can help researchers understand evolutionary changes within fly traps in light deficient environments and how they could potentially compensate for this lack of energy.