

The Effect of a Calcium Blocker on *Dionaea Muscipula* Gland Stimulation

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Endemic to just small areas of the coastal plain in North and South Carolina, the Venus flytrap species are in peril as environmental alteration threatens extinction. Pollution, specifically the use of pesticides, which is a potent neurotoxin that utilizes calcium homeostasis as their mode of action, has been determined to be a detrimental inhibitor of the Venus flytrap plant which relies on physical stimulation and electrical impulses through the movement of calcium ions to enable trap closure and the activation of the digestive glands. The simulation of the absorption through contaminated pesticide-resistant prey and the effect of varying concentrations, however, has not been previously researched. This study uses incrementally increasing concentrations of gadolinium (iii) chloride hexahydrate to identify the correlation between a calcium blocker and glandular activity in Venus flytraps. It was documented that as the concentration of $GdCl_3$ increases, not only does digestion potential decrease but so does trap closure rate. We also illustrate the average concentration in which the majority of traps begin to exhibit near-total paralysis. The resulting observations and statistical data of our study can guide the development of policies on the use of neurotoxic pesticides near protected land or even expand such areas.