Quit Bugging Me: The Effects of Capsaicin on Acheta domesticus and Zophobas morio

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With the amount of agricultural land decreasing, it is essential to maximize the output of crops. Insects impact this output, reducing the amount of edible vegetation by about 20%. This project attempts to resolve this problem by using a natural chemical called capsaicin. Capsaicin is an oily chemical found in most chili peppers, and is the main source of their spiciness. It was hypothesized that the growth of plants would not be stunted when applied with capsaicin. In addition, insects would be killed faster when applied with peppers containing higher concentrations of capsaicin than peppers with lower concentrations. The juices from four types of peppers, containing varying amounts of capsaicin, were sprayed on radish plants and two species of insects, Acheta domesticus and Zophobas morio. The results supported the hypothesis by showing that the growth rates of all experimental plants were nearly equivalent to the control group. Also, peppers containing a higher concentration of capsaicin were able to kill the insects faster than peppers with a lower concentration. The results from this experiment could greatly improve modern insecticides and their agricultural applications.