Ideal Dilution of Capsaicinoids as a Natural Pesticide

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Runoff of synthetic pesticides affects the health of bodies of water by exposing, and thereby negatively impacting, plant and animal life. Agricultural uses of synthetic pesticides repel or eliminate pests. Crickets are known to cause damage to crops. Other research has isolated specific capsaicinoids for consideration as a pesticide. By creating a biopesticide using capsaicinoids extracted from peppers, and water, we investigated the viability of capsaicinoids as a natural pesticide. This pesticide was created by first extracting capsaicinoids from habanero peppers (Capsicum chinense). We did this using an extraction method similar to that of the extraction of perfumes from flowers, using ethanol in the extraction process. Three varying quantities of the capsaicinoids were diluted with water to create .05M, .03M, and .01M, and water as a control. Each dilution of three varying quantities of the capsaicinoids was administered to alfalfa sprouts (Medicago sativa) with brown crickets (Acheta domestica) in each container. Observations of the crickets were recorded over 5 days. The crickets were never observed eating alfalfa sprouts that had been sprayed with diluted capsaicinoids, and there appeared to be no harm to the alfalfa sprouts. This led us to the conclusion that a pesticide containing only water and capsaicinoids was an effective biopesticide.

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