



Seeking: Methods to move non-systemic or non-translaminar molecules into plant

Description

OVERVIEW

This organization is looking for more effective ways to move non-systemic or non-translaminar pesticide molecules into a plant waxy cuticle layer and/or through guard cells (stomata). It would be even better if these molecules could penetrate into epidermal cells. (Proof of principle data you provide will help determine the acceptability of your solution).

BACKGROUND

Moving molecules into plants is difficult. A plant surface consists of a variety of surfaces including a waxy cuticle underlined by epidermal cells, mesophyll cells and finally the phloem and xylem. In addition there are holes in the plant surface called stomates that allows the plant to breath. Due to this collection of barriers the uptake of pesticides by plants can be slow and inefficient. Large hydrophobic molecules rarely penetrate the cuticle of the plant and small hydrophilic molecules enter slowly.

Currently, pesticide application are often made with stickers and spreaders, surfactants, oils and other polymers that increase the spread and stick of the pesticide containing solution across applied surface. We need is a method that allows molecules to penetrate the waxy cuticle and to open up the epidermal cells wall to our molecules. Is there a way to do both simultaneously? Can chemical complexes be created that allow pesticides to 'Piggyback' their way into cells? Can stomates be opened to allow pesticide to enter the leaf?

Ideally, we would like to have an order of magnitude improvement of a pesticide uptake to the plant compared to traditional formulations of the same pesticide.

CONSTRAINTS

Your solution should have accompanying proof-of-principle, effectiveness, and toxicity data

POSSIBLE SOLUTION AREAS

Cellular biology research.
Plant physiology
Translocation
Enhanced Diffusion
Dermatology

Desired Timeframe

Within 12 months

Field Of Use and Intended Application

Pesticides, Insect , weed and Disease control strategies

Desired Outcome

Methods that increase the effectiveness of pesticides on plants.. The technology will be applied by conventional farm equipment, tractor sprayers and airplanes, but will result in lower application rates of pesticides thus reducing the impact on the environment.

Previously Attempted Solutions

Surfactants that reduce surface tension,, Oils, microemulsions, nanotechnology.

Region

North America

Years in Business

More Than 10 Years

Annual Revenue

More Than \$500 Million

Company Type

Intermediary/Broker

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