Synthesis of Cinnamic Acid for Use as a Natural Pesticide

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According to the research published by the University of San Diego, in 2005 the EPA had more than 160 synthetic pesticides classified as possible carcinogens. Traditional synthetic pesticides contain several toxins and chemicals that are proven to have negative effects on human health. It has been shown that long-term exposure to certain pesticides can cause lymphoma, leukemia, breast cancer, asthma, and other serious and potentially fatal conditions (UCSD, 2008). The implementation of a natural-based pesticide that is safe for the farmer and the plantation is essential. Cinnamic acid is a monocarboxylic aldehyde found in a wide variety of plants and is considered toxic to some pests. The purpose of this investigation was to create an economical and human-friendly pesticide with cinnamic acid as the active ingredient. The cinnamic acid was synthesized from benzaldehyde in a laboratory, and then tested in a cotton field. The suspension containing the cinnamic acid was sprayed on several Mexican cotton plants Gossypium hirsutum. The parasites monitored for ten minutes were the mealybug Pseudococcidae and the cotton aphid Aphis gossypii. In conclusion, both acid concentrations succeeded in stopping the activity of the parasites an average of 41% and 52.09% for Aphis gossypii and Pseudococcidae samples, respectively. It is estimated that these percentages will increase as the concentration of acid in the suspension increases and/or the balance components of the suspension is modified.

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