Extracting Neem and Epazote Compounds by HPLC Methods

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Citrus Greening, also known as Huanlongbing, is one of the most destructive diseases of citrus worldwide. In Florida, the losses due to Citrus Greening is about 10% of the total profit, resulting in a revenue reduction of $2.7 billion dollars and a reduction of 1.8 billion dollars in economic activities related to citrus work force. Citrus Greening is spread by the vector the Diaphorina citri, Asian Citrus Pysllid (ACP). The ACP is the host of Candidatus liberibacter asiaticus, the bacteria that causes Citrus Greening. Currently, there is no cure for Citrus Greening. Azadirachta indica, known as Neem, has 135 compounds, but very few have been studied in detail. Neem is known to contain many anti-bacterial, anti-fungal, and insect-repellent properties. Dysphania ambrosioides, known as Epazote, contains Terpene, a compound that shows insecticidal activity. A methanolic extract of Neem and Epazote leaves was made out of dried and crushed Neem and Epazote leaves. The extracts were diluted to test the amount of Neem and Epazote needed for their insecticidal properties to show. The various extracts were tested on Asian Citrus Pysllids and the mortality rate was calculated after 24 hours. The results show that 10% of the original neem leaf extract killed 100% of the Asian Citrus Psyllids (chi-squared, $p<.01$). The original Epazote Extract killed 90% of the Asian Citrus Psyllids (chi-squared, $p<.01$). These results show that Neem and Epazote's insecticidal properties can be used to treat Citrus Greening.

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