



Why We're Different, a Craft Brewed Botanical Insecticide by Rob Larose

One of the outcomes of the organic green revolution is a greater awakening to ancient technologies from other cultures that offer the modern world sustainable solutions to age old problems. The seed extracts from the neem tree, as a natural insecticide, is one such discovery that can fall into this category. Neem is an evergreen tree native to the Indian sub-continent and is perhaps the most researched tree in the world for its pest control uses. BioSafe Systems has adapted these old time remedies into sustainable products like our Botanical Insecticide/Nematicide, AzaGuard.



Neem Fruit

Over the last few decades, research on neem seed extracts has resulted in identifying several important limonoids that exhibit a wide variety of biological activity as an insecticide and to some extent as a fungicide. Azadirachtin is among these limonoids that was shown to have powerful natural insecticide properties, acting as an Insect Growth Regulator, Anti-Feedant and Ovi-Position Inhibitor. Over the years, methods were developed to extract this compound in pure powder form (Azadirachtin Technical), ranging in Azadirachtin concentrations from 1.0% to 6.0%, and used for making commercial pesticide formulations. BioSafe Systems uses 3.0% Azadirachtin as the active ingredient in AzaGuard.



Azadirachtin Technical-Powder Extract

Since 1985, Azadirachtin based pesticide products have been widely used in both agriculture and horticulture. While all of these products and formulations may appear to be similar with Azadirachtin as an active ingredient, efficacy of these formulations can be significantly different as there are factors other than Azadirachtin, that contribute to the performance of the product. It starts from the conditions under which the technical material is extracted, stored, and formulated. There are a number of technical hurdles in this stage since Azadirachtin is hydrophilic in nature. If not extracted and stored properly, moisture/humidity will break apart the compound, making it less effective. Azadirachtin is most potent when it is extracted from the seeds of a fresh harvest, but the purity of the powder extract (technical) in terms of percentage of Azadirachtin, can also make a difference. The Azadirachtin concentration (purity) in powder extracts used for making formulations range from 14%-40%. High purity materials, such as 40%, are more refined and do not preserve other important limonoids which are as important as Azadirachtin.

This is what sets BioSafe Systems' Azadirachtin based product AzaGuard apart from all other competitors. BioSafe Systems uses the technical material that is extracted from newly harvested fresh seeds to make the formulation. This is done by air freighting relatively small quantities of extracted Azadirachtin powder to match up with the ongoing local harvest throughout various regions of India. It is then blended with proprietary high quality inerts here in the United States, under proper conditions of temperature and humidity. The Azadirachtin content in our technical material does not exceed 20.0% by weight in order to maintain high levels of other limonoids. The inclusion of these other limonoids in AzaGuard enhances the efficacy of the active ingredient as an Insect Growth Regulator, Insect Repellant and Anti-Feedant. All these efforts lead to a high quality product for our customers.