

RESEARCH HIGHLIGHTS

Black Watermelon Bug (*Cordius viduatus*): A Detrimental Agricultural Pest

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Citrulus lanatus, commonly known as watermelon is a vine-like flowering plant that belongs to the family Cucurbitaceae. Watermelon is ranked as the second most important produced crop worldwide. According to reports, 89.1 million tons of watermelon was produced in 2010 globally¹. Throughout history, this crop was distributed all over the world as trade and knowledge².

Many insects and pests attack the watermelon crop but the black watermelon bug, scientifically known as "*Cordius viduatus*" is the biggest potential threat to its production on a huge scale and also deteriorates its quality which results in low yield. The black watermelon bug is a harmful agricultural pest that belongs to the order Heteroptera and family Dinidoridae.

Some pesticides and insecticides can be used to control insects and pests. Accordingly, imidacloprid is a synthetic chemical insecticide, which is extensively employed for controlling insect pests. However, it is used less often due to its highly negative impacts on non-target organisms³. Moreover, these organophosphates also possess poor environmental as well as toxicological profiles.

The issues caused by organic synthetic insecticides on the environment as well as non-target organisms⁴ has stimulated the application of natural products as a substitute pest control strategy mainly in developing countries⁵. In this regard, plant-based insecticides like Neem (*Azadirachtin Indica*) are effective and show good efficiency against more than 400 insect species⁶. Moreover, neem oil can be used potentially against insects as well as mites and to manage phytopathogens.

Considering these facts, researchers carried out a new experiment to calculate the effects of imidacloprid as well as azadirachtin on the black watermelon bug, especially evaluating the acute toxicity, mortality and sublethal effects while determining the lethal concentration and lethal time⁷.

This study exhibited that the imidacloprid possess a stronger effect on the elimination and mortality of the black watermelon bug as compared to azadirachtin. Also, the imidacloprid pesticide requires less time in the elimination and death of the black bug population by employing the half-lethal concentration.

Conclusively, the imidacloprid was found very toxic against the black bugs regarding both mortality and longevity. Furthermore, the botanical insecticide group such as azadirachtin showed a moderate toxic impact on the population density of the black bug than imidacloprid but this approach is environment friendly and reduces environmental pollution.

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