

Alkaloid detections from ladybird eggs

Dr. Manuel F. Santiago

Manuel-Santiago@utc.edu

Coccinellidae (ladybird) infestation in agricultural areas and human dwellings causes crop damage as well allergic reactions in humans if bitten, respectively. This class of beetle continues to gain interest because during prolonged habitual climate change results in an increase of ladybird population. An interest in their feeding habits can be used to determine their predation. The analysis of the presence of alkaloids in ladybugs continues to gain interest due to their ability to produce alkaloids as a defense mechanism. This investigation was initiated due to the limited methods of detecting alkaloids using high-performance liquid chromatography coupled with gas chromatography-mass spectrometry. Ladybird eggs were provided and stored in -20 degrees Celsius. The eggs were digested in methanol, mixed with hexane, and liquid phases were separated into separate glass containers. The methanol phase was passed through glass-wool that was rinsed twice with methanol. The rinsed samples were analyzed in the liquid chromatograph followed by the mass spectrometer. This model of analysis demonstrated that various alkaloids were present such as heterocyclic, straight-chain, and steroidal-alkaloids. This project also showed that the retention times could be reduced by varying gradient solvent of methanol and acetonitrile.

The results from this investigation will provide evidence that alternative methods can be determined to identify the alkaloids when the ladybirds are subjected to various conditions.