



Characterizing the volatile organic profile of *Chinocossus acronyctoides* (Lepidoptera: Cossidae) larvae through Solid-Phase Micro extraction-Gas Chromatography-Mass Spectrometry (SPME-GCMS)

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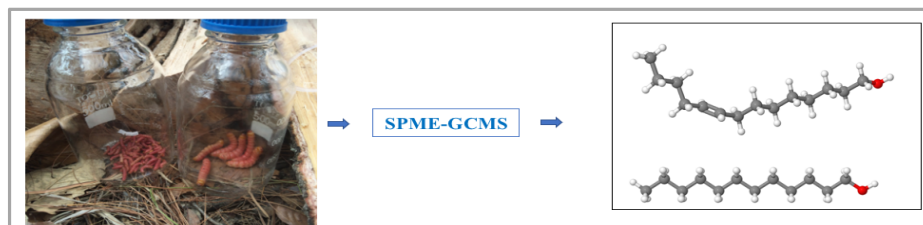
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ABSTRACT

Plants and animals emit diverse array of Volatile Organic Compounds (VOCs) which plays an important role in their ecology. Many insects use scents as a way of deterring predators. Hence, we decided to investigate the VOCs composition of *Chinocossus acronyctoide* moth larvae, a Cossid species. The VOCs composition of *Chinocossus acronyctoides* moth larvae were identified through a coupled Solid-Phase Micro extraction (SPME) with gas chromatography mass spectrometry (GC-MS). This study allowed the identification of major VOCs involves behind the pungent and aromatic nature of the larvae of *Chinocossus acronyctoides*. A comparative analysis results that in the younger stage larvae or second instar, 3 major organic compounds were identified while in the older stage or fifth instar larvae, 4 major VOCs were identified. Each sample had a varying VOCs profile. In all the two stages the compounds present were the fatty acid class of alcohol, acetate and aldehyde. Present study represents the first comparative analysis between the different stages of *Chinocossus acronyctoides* moth larvae as well provides the composition details of VOCs in this Cossid species particularly.

Graphical Abstract:



SPME-GCMS Analysis of the two different stage larvae of *Chinocossus acronyctoides*.

Keywords: Molecular docking, DFT (density functional theory), ADME/T, Halogen.