World Academy of Science, Engineering and Technology
International Journal of Bioengineering and Life Sciences
Vol:16, No:10, 2022

Effect of Active Compounds Extracted From Tagetes Erecta Against Plant-Parasitic Nematodes

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Abstract : Plant-parasitic nematodes cause major loss in global food production and destroying at least 21.3% of food annually. About 4100 species of plant-parasitic nematodes are reported, out of this, Meloidogyne species is prominent and worldwide in distribution. Observing the harmful effects of chemical based nematicides, there is a great need for an eco-friendly, highly efficient, sustainable control measure for Meloidogyne. Therefore, In vitro study was carried out to observe the impact of volatile cues obtained from the Tagetes erecta leaves on plant parasitic nematodes. Volatile cues were collected from marigold leaves. For chemical characterization, GCMS (Gas Chromatography Mass Spectrometry) profiling was conducted. VOCs (Volatile Organic Compounds) profile of marigold indicated the presence of several types of alkanes, alkenes varying in number and quantity. Status of nematodes population by counting the live and dead individuals after applying a definite volume (100µl) of extract was recorded at different concentrations (100%, 50%, 25%) with contrast of control (hexane) during different time durations i.e.,24hr, 48hr and 72hr. Result indicated that mortality increases with increasing time (72hr) and concentration (100%) i.e., 50%. Thus, application of prominent compound present in Marigold in pure form may be tested individually or in combination to find out the most efficient active compound/s, which may be highly useful in eco-friendly management of targeted plant parasitic nematode.

Keywords : plant-parasitic nematode, meloidogyne, tagetes erecta, volatile organic compounds
Conference Title : ICE 2022 : International Conference on Entomology
Conference Location : Paris, France
Conference Dates : October 27-28, 2022