

Cardamom as Biofertilizer and Biopesticides

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Abstract: In plants essential oils have recognized important source of natural pesticides. They are capable of producing the compounds that constitute essential oils which helps in controlling many harmful insects. It work as biopesticides with emphasis on essential oils chemistry, extraction, mode of action, pesticidal properties, phytotoxicity, etc... These show adverse effects on human health. The bio-insecticides Green pesticides has posted an alternative and health sectors. They produce multiple modes of action that enhances their activity due to the synergistic action between the constituents. Due to their presence of the volatile nature. Essential oils are used as fumigants against the agriculture and storage insect. They are active against the variety of insects, their fast penetrating and non-toxic residues in the treated products. Essential oils are based on low – toxic, environmental persistence and eco-friendly. They are compatible with the biological controls programs and the natural enemies of the pest. Plant essential oils show the broad spectrum of against the insect and pest activity. The insecticidal, fumigant, repellent, antifeedant, and growth of the protection and stored products. These oils shows effects on the octopaminergic nervous system in insects. This also provide effective results in agricultural situations, mainly in the organic food production. It helps to develop the resistance for many synthetic pesticides. Rich in endemic plant biodiversity that these may have the great impact in the future integrated pest management. The effects against the many phytopathogenic fungi, oomycetes, bacteria and yeast. It reported as the germination of seeds through the application of the gibberellin hormon e. Essential oils of cardamom shows good efficiency on oviposition deterrence of *C. Maculatus* females. The chemical constituents of the cardamom were identified as the 1, 8- cineol, alpha – terpinyl acetate, terpinene and fenchyl alcohol. These results in the essential oil of the cardamom is the best choice for stored products of the pests.

Keywords: Essential oil, fumigants, repellents, biological properties, sustainable agriculture, antifeedant, phytopathogenic fungi, insecticidal.

Introduction

The essential oils are used for the controlling the loss of damage to the crops. Now a days they are searching for highly selective and biodegradable pesticides, that can be used to reduce the pesticides while we maintain the crops. From these we can get natural products which are used as an excellent alternatives to the synthetic pesticides. These are volatile in nature, has strong aromatic components, flavor or scent to a plant. these are the by-products of the plant metabolism which are referred as primary metabolites and secondary metabolites.

These essential oils are found in the gland ular hairs or present in the plant cell wall cavities and also in the leaves, stems, flowers, barks, root, fruits and different parts of the plant. The aroma of the essential oils characteristics provide different types of functions which includes the attracting or in the repelling insects, also helps in protecting from the temperature difference, and utilizing the chemical constitution in the oil as defense material. The essential oils produce important source of biologically active compounds such as antibacterial, antifungal, insecticidal, and also anti inflammatory compounds. It is in developing