

Utilization and Application of Essential Oils for Managing Stored Grain Insect Pests

Dr. Seema Kodesia

Department of Zoology

Bareilly College, Bareilly, India

Abstract: *Essential oils are natural phytochemicals produced as secondary metabolites in aromatic plants. These complex mixtures of volatile compounds typically consist of 20 to 60 different molecules in varying concentrations. Due to their lipophilic nature and lower density compared to water, essential oils can interfere with key metabolic, biochemical, physiological, and behavioral processes in insects. Many essential oils and their components have demonstrated repellent, antifeedant, ovicidal, oviposition-inhibitory, and developmental-inhibitory effects on insects. These effects are believed to result from disruptions to the respiratory and nervous systems of the insects.*

As a source of bioactive molecules, essential oils offer an eco-friendly alternative to traditional insect control agents. They are largely selective in their action and have minimal or no adverse effects on the environment or non-target organisms, including humans. Consequently, essential oil-based formulations hold promise as sustainable methods for insect management, particularly in the context of protecting stored grains.

Keywords: Essential oils, repellent, antifeedant, bioactive molecules stored grain insects