

The Use of Natural Products to Control Molds Attacking Food and Grain in Storage

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Many natural products and their constituents are known to possess antimicrobial properties. Much work has been done to study the effects of these compounds on food and grain pathogens in order to evaluate the possibility of using these materials as substitutes for the chemical fungistats currently in use. Most studies have focused on the effects of natural products on *Aspergillus*, *Penicillium* and *Fusarium* species known to produce mycotoxins highly toxic to animals and humans. Many extracts of herbs and spices, as well as their constituents, inhibit the growth of molds. However, in many cases the fungicidal effect depends on the type of extract (aqueous, alcohol, etc.), the assay method, and the strain of mold tested. To evaluate the cost of treatment with natural products, studies were conducted to compare their effective dose with that of commonly used fungistats. In addition, fungistats and natural products were applied together at low doses. In most cases there was a synergistic effect, demonstrating that future control agents may possibly be based on low doses of natural products (which are relatively expensive) combined with reduced amounts of chemical fungistats, to follow the trend in agriculture today. The mode of action of the natural products is still not known, although there are indications that these materials may damage the cell membrane by altering its permeability. The possibility that more than one mechanism is involved in their fungicidal activity should not be ruled out.

Key words: Natural products, molds, food, grain.

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