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Comparative Study of Natural and Chemical Pesticides of Sorghum Grain

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Abstract: *Sorghum is a vital cereal crop susceptible to pest infestation during storage, leading to significant yield losses. Traditional pesticides pose environmental and health risks, necessitating exploration of safer alternatives. This study compares the efficacy of natural compounds, including neem, turmeric, and asafoetida, with boric acid, a commonly used chemical pesticide, for sorghum grain protection. Neem, turmeric, and asafoetida possess insecticidal properties, while boric acid is known for its effectiveness against a wide range of pests. A series of experiments were conducted to evaluate the effectiveness of these compounds individually and in combination against common sorghum grain pests such as weevils and moths. Results indicate that both natural pesticides and boric acid significantly reduce pest infestation levels compared to untreated sorghum grain samples. This study underscores the potential of natural compounds as effective alternatives to conventional chemical pesticides for sorghum grain protection. Further research is done to optimize the formulation and application methods of natural pesticides for widespread adoption by sorghum farmers, promoting sustainable pest management practices in agriculture. However, a comparative analysis reveals that the natural pesticide formulation, particularly the combination of neem, turmeric and asafoetida exhibits comparable efficacy to boric acid in controlling pest infestation in sorghum grain. Moreover, the natural pesticide formulation demonstrates favorable attributes in terms of safety for human consumption and environmental impact presenting a sustainable alternative to chemical pesticides.*

Keywords: Sorghum grain, natural pesticides, neem, turmeric, asafoetida, chemical pesticide, boric acid, pest control, stored grain protectant, sustainability, agricultural practices, comparative analysis, environment-friendly, etc

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