

# Creating Novel Approaches to Mitigate Aflatoxin Risk in Food and Feed with Lactic Acid Bacteria - mold growth inhibition and aflatoxin binding



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## LAB can provide a potential to mitigate the aflatoxin induced health risks by binding and inhibiting mold growth

A LAB based **biocontrol** method seems to present a promising approach for aflatoxin control.

Especially, strains of the genus *Lactobacillus* have been relatively well studied and, according to published research reports, provide noticeable potential to mitigate aflatoxin risks through inhibition of fungal growth and binding of aflatoxin contaminants in food and feed matrices.

## Problem

Aflatoxins are produced by *Aspergillus flavus* fungi in favorable conditions. Heat and humid environmental conditions promote the fungal growth and toxin production. This rotten maize is considered not suitable for human consumption but is often fed to farm animals. **Aflatoxin B** metabolites into **aflatoxin M** in lactating animals, including humans. Aflatoxins have severe health effects.

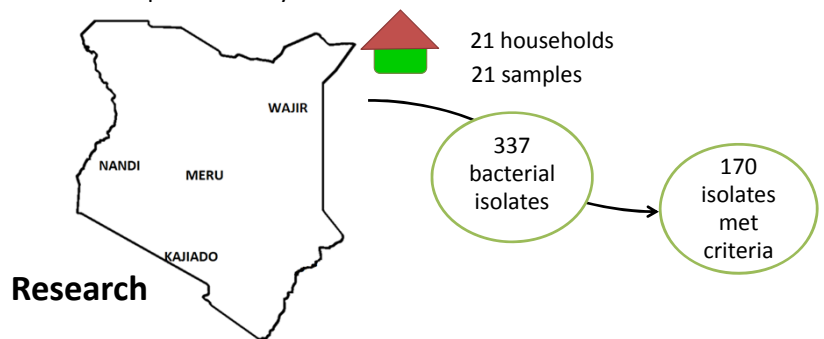


## Expected results

- Find local Kenyan strain which **can effectively bind aflatoxins and inhibit mold growth**
- Use this/these strains in the human diet and animal feed to **reduce the aflatoxin induced health risks**

## Bacteria strains

170 LAB strains of bacteria have been isolated from 21 different indigenous fermented dairy and cereal products prepared locally in different parts of Kenya.

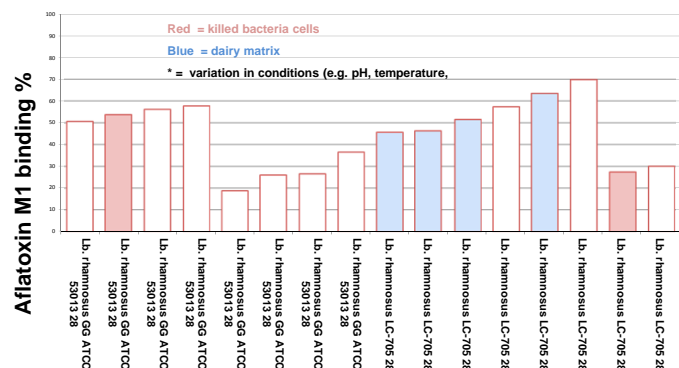


## Research

**Aflatoxin binding** is a reversible reaction, and occurs on bacterial surface and involves interaction with carbohydrates, peptidoglycan and to some extent protein structures.

**Reduced mold growth and aflatoxin production** may be caused by competition between bacterial cells and fungi over living conditions. Most likely, binding of aflatoxins depends on environmental conditions and is **strain-specific**.

Especially, strains of the genus *Lactobacillus* have been relatively well studied and, according to published research reports, provide noticeable potential to mitigate aflatoxin risks through inhibition of fungal growth and binding of aflatoxin contaminants in food and feed matrices.



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