

# Antimicrobial Soy Proteins May Help Prevent Food-borne Illness

## NEW STUDY



Two peptides derived from **soy** have been shown to have the potential to be **natural antimicrobial** alternatives.



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**DATE:** 25 Apr 2016

**COUNTRY:** Canada

**INSTITUTION:** University of Guelph

**PROFESSIONAL:** Suresh Neethirajan, Rekha Dhayakaran, & Xuan Weng

**TYPE OF STUDY:** Screening assay

Soy is rich in protein, making it a popular food among those who opt for a largely plant-based diet. Two of the plant's **peptides** - or amino acid chains that are typically smaller than proteins - have been investigated for their

antimicrobial potential. This study was carried out by Dr. Suresh Neethirajan, Rekha Dhayakaran, and Dr. Xuan Weng at the Bionano Laboratory at the University of Guelph's School of Engineering.

## The Study

Two **soy** peptides were isolated from the plant. They were then tested on **two common strains of bacteria** that cause food poisoning, *Pseudomonas aeruginosa* and *Listeria monocytogenes*. The researchers developed a **high throughput assay**, which is a highly-specialized testing tool to gather large amounts of data quickly, significantly minimizing the time needed to identify compounds with antimicrobial action and the amounts at which they are effective.

## The Results

While the first peptide had a moderate effect on *Listeria*, the more potent antimicrobial proved to be the **second peptide**, which was strong against both strains of bacteria even at a relatively **low concentration**. By testing the soy peptides at several different concentrations, the researchers were able to find the optimal dosage for killing the pathogens.

## What Does This Mean?

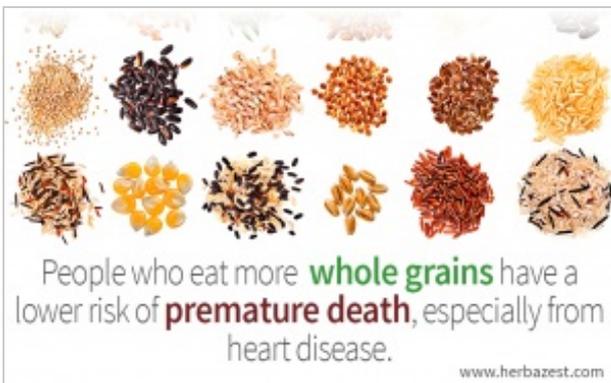
These peptides derived from soy have the strong potential to serve as natural antimicrobial alternatives both in the **food industry** and as **medicine**. As the problem of antibiotic resistance continues to grow, new compounds are needed to deal with pathogens. Soybeans are already abundantly cultivated, so implementing treatments for food that include these soy peptides could help **prevent food poisoning**. Now that these peptides have been identified as antimicrobial agents at certain doses, it is necessary to perform large-scale experiments using them.

This research is available online in the journal *Biochemistry and Biophysics Reports*.

- University of Guelph, Soy Shows Promise as Natural Anti-Microbial Agent: Study
- Biochemistry and Biophysics Reports, Investigation of the antimicrobial activity of soy peptides by developing a high throughput drug screening assay, 2016

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