

**E. Coli and Salmonella can live inside plant tissue - immune to external sanitation--mung bean sprouts and peanut seedlings**

**<http://www.foodproductiondaily.com/Quality-Safety/Foodborne-bugs-can-infect-plant-tissues-immune-to-external-sanitation>.**

**Foodborne bugs can infect plant tissues, immune to external sanitation**

**2 comments--By Rory Harrington, 17-Aug-2011**

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**Disinfecting the outside of foodstuffs may be insufficient to eliminate the danger from pathogens after US scientists discovered that bugs such as E.coli and Salmonella can live inside plant tissue.**

**Amanda Deering and Robert Pruitt of Purdue University**  
**A study by researchers from Purdue University found that E.coli 0157:H7 was present in the tissue of mung bean sprouts and Salmonella in peanut seedlings after they contaminated seeds with pathogens prior to planting. Seeds could be contaminated in this way before or after planting through tainted soil or water, said foodscience researcher Amanda Deering.**

***"The pathogens were in every major tissue, including the tissue that transports nutrients in plants," she said.***

**Results from her experiments were published in separate papers in the Journal of Food Protection and Food Research International.**

**The issue of E.coli contamination in sprouts has become a major food safety issue following the outbreak of a new 104:H4 strain in Germany that began in May 2011, killing 46 and sickening over 3,900.**

**The European Food Safety Authority (EFSA) last month said contaminated fenugreek seeds imported from Egypt were the likely cause of this outbreak and a much smaller one later in the summer in France.**

### **Moving bacteria**

**Locating pathogens inside plants had been difficult because test methods involve slicing pieces from the plants which can cause the bacteria to move – either from the inside to the outside or vice versa, said Deering and botany professor Robert Pruitt.**

**The pair said it was difficult to know where the pathogens were originally before the cutting took place.**

*"The results are often imprecise because the methods allow bacteria to move," explained co-author Pruitt.*

**A fixative was used to freeze the location of the bugs in the plant tissue before slicing occurred. A process called immunocytochemistry saw antibodies labeled with fluorescent dye that were then used to detect the pathogens,**

*"This shows us as close to what was in the plant when it was living as possible," Deering said. "The number of bacteria increased and persisted at a high level for at least 12 days, the length of the studies."*

**After carrying out the freezing process, the scientist said hundreds of bacteria were detected in almost every type of tissue.**

**While proper sanitization eliminates Salmonella and *E. coli* from the surface of foods, this would not combat contamination of inner tissues, Deering and Pruitt said. Only cooking those foods to temperatures known to kill the pathogens would eradicate them from inner tissues.**

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**More news articles on this topic**

- EU bans "deadly" Egyptian seeds after E.coli report**
- European taskforce mobilised as E.coli 104:H4 hits France**
- Germany finally confirms source of deadly E.coli outbreak**
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**2 comments**

**E. Coli & Salmonella in sludge biosolids fertilized vegetables  
This is to comment on your article about the new test which found that E. Coli and Salmonella can live inside plant tissue**

**The waste industry and US EPA recommend the use of Class A sewage biosolids compost as "fertilizer" in home vegetable gardens.**

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[http://www.usludgefree.org/pdf/hg/hg\\_bagged\\_fertilizer.pdf](http://www.usludgefree.org/pdf/hg/hg_bagged_fertilizer.pdf)

**The EPA and the Water Environment Research Foundation issued a report that said the re-growth of bacteria in Class A and B sludge after leaving the treatment plant was often “explosive” and they could not explain the cause. The most significant type of treatment that caused the explosive re-growth of bacteria was dewatering the sludge, a regular process for all types of Class A sewage sludge. E. coli and Salmonella are the two resistant bacteria tested for and they often do not show up on lab tests before the sludge leaves the plant. However, the re-growth often doubles every 30 minutes. Their tests showed sludge bacterial regrowth up to the 6th power from the time it left the treatment plant until it was delivered to the composting or land application site. This is common and is called “viable but non-culturable bacteria”**

**Add to this the fact that there may be infectious human and animal prions in sludge biosolids which can adhere to vegetables..**

**Class A sludge compost should be banned from use in home vegetable gardens.**

**And all sludge - both Class A OR Class B are dangerous to human and animal health and should be banned from all**

**food crops.**

**PLANT uptake of sludge pathogens and pollutants:**

**<http://www.sludgevictims.com/plants/uptake.html>**

**Helane Shields, Alton, NH sludge researcher since 1996**

**[hshields@tds.net](mailto:hshields@tds.net) <http://www.sludgevictims.com>**

**Prions in sewage sludge: <http://www.alzheimers-prions.com/>**

**Posted by Helane Shields**

**19 August 2011 | 00h01**

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**Which foods?**

**Which foods are more likely to contain pathogens in their tissue.**

**What is the state of fresh produce such as lettuce and radishes, which we don't cook.**

**Could the researches provide a little more information?**

**Posted by Susan**

**17 August 2011 | 19h51**

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