

Food Safety Concerns Loom this Thanksgiving with Salmonella Outbreak

Thanksgiving and turkey are somewhat synonymous. Can't really have one without the other! However, this Thanksgiving, the showstopper bird might be missing from some tables across America.

Federal food and health officials have issued warnings about potential bacteria contamination of turkey and romaine lettuce in the United States just a couple weeks before the big feast day. A salmonella outbreak has potentially spread throughout the entire turkey processing industry, leading officials to advise extra caution to prevent food poisoning as chefs and cooks prepare the Thanksgiving turkey.

The salmonella outbreak has so far hospitalized over 60 people and sickened 165 people through 35 states, killing one in California, according to the Centers for Disease Control and Prevention (CDC) and the U.S. Department of Agriculture's Food Safety and Inspection Service.

Investigators have yet to be able to identify a single supplier of live turkeys or raw turkey products as the source of the outbreak. This has led officials to believe that the strain involved may be widespread throughout the turkey industry including ground turkey, turkey patties, and full turkeys.

However, there is good news!

Officials are saying that you don't have to give up your Thanksgiving turkey just yet! They are instead advising to take precautionary health safety steps before and after handling the turkey.

Steps to follow:

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1. Use warm soapy water to thoroughly clean any surfaces that may come in contact with the raw meat or poultry juices before and after cooking.
2. Instead of thawing the turkey by leaving it on the counter, thaw it in the microwave or in the fridge in cold water (changing it every 30 minutes).
3. When cooking the turkey or any leftovers that contain turkey, make sure the food reaches an internal temperature of at least 165 degrees Fahrenheit.

But it isn't just the turkey that will be affected this holiday season.

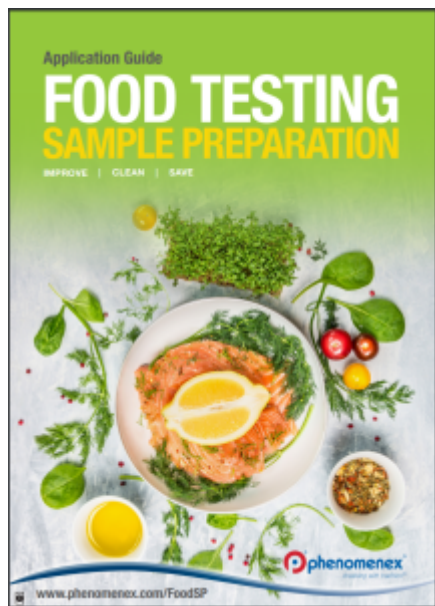
Not into eating anything healthy during your carb-loaded Thanksgiving? Now you have the best excuse to avoid the greens! The CDC warned the public not to eat ANY romaine lettuce, along with retailers and restaurants not to sell or serve it, over concerns of an E. coli outbreak.

This recent outbreak seems to be from the same strain of E. coli that affected at least 32 people in 11 different states since October to become sick. So, try to avoid not only romaine lettuce, but also any salad mixes that might contain romaine.

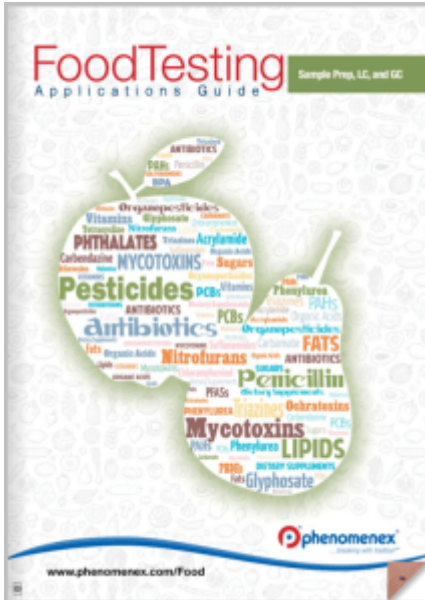
When you gather together this Thanksgiving with your friends and family, remember the health safety steps to make sure everyone stays happy and healthy after eating their weight in food!

Check out some of our recent food safety technical applications and guides below:

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TN-1060

APPLICATIONS

phenomenex

Food Safety Analysis: LC/MS/MS Applications Using New Kinetex® Core-Shell Technology HPLC Columns

Richard L. Smith, PhD, and Robert M. Waymouth, PhD

The stability of salmonella bonded phases based on the ultra-high efficiency (UHE) core-shell technology provides additional security that is proven to be vital for the separation challenges presented in food safety analysis.

Introduction

The detection of bioterrorism-associated foodborne pathogens such as select species of food products (e.g.,) tainted with microbial, antibiotic, chemical, and potentially chemical antibiotics, is one of the higher profile assignments.

The chemical and structural differences between food contaminants and the potential for the presence of multiple components presents a significant separation challenge. A single bonded phase such as C₁₈ is unable to provide the selectivity required to chromatographically resolve these potentially complex mixtures. However, the availability of orthogonal bonding phases that provide alternative selectivity through additional modes of interaction is important for the separation of this broad spectrum of analytes. Chemical bonding controlled by government regulations for animal-sourced food or components in food and cosmetics has shown the need for novel sample preparation methods. Additionally, the very complex sample matrices present unique sample preparation challenges.

Over the last several years, smaller fully porous (FP) particles (5- μ m diameter) have been introduced and applied much more often because they provide higher efficiency and resolution, which results in significantly shorter analysis times and increased productivity. However, the increased resolution that 5- μ m FP particles provide has been also achieved through smaller particle size columns utilizing column backscattering that require the use of specialized ultra-high pressure capable (UHPLC) instrumentation.

A newly developed, commercialized Kinetex 5.0- μ m core-shell chromatographic particle offers the performance benefits of fully porous sub-5- μ m particles (increased chromatographic efficiency and resolution, shorter analysis times, and increased sensitivity) but at substantially lower operating pressures. The benefits provided by the core-shell technology are illustrated in this Food Safety (FS) Applications publication in which differences in bonded phases and retention and separation are fully formed on the Kinetex phase currently available.

Kinetex Core-Shell Technology

The Kinetex technology combines a newly developed 1.0- μ m (FP) silica core and a 3.0- μ m porous silica shell (Figure 1). This particle design results in very stable and nearly homogeneous bonded phases that significantly reduce pore dispersion due to size differences. The use of Core-Shell technology, however, has significantly improved the 2.2- μ m particle size shell allows for better kinetics of diffusion, thereby minimizing

peak dispersion due to resistance to mass transfer (the “ σ ” term in the van Deemter equation). Figure 2A shows a 10,000x of 1.0- μ m Kinetex particles under 1.00x magnification highlighting the homogeneous top of the porous shell particles, and Figure 2B shows a 10,000x of a single 5.0- μ m particle under 10.00x magnification highlighting the 100-Å porous surface of the shell.

Figure 1
Kinetex 5.0- μ m Core-Shell Technology

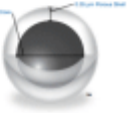



Figure 2
Kinetex 5.0- μ m Core-Shell Technology



The core-shell technology column provides an increase in chromatographic efficiency without faster analysis through the use of shorter columns without compromising resolution. This will significantly improve sample throughput for food safety laboratories where government regulations mandate increased sample testing. In addition, the shorter chromatographic paths obtained with core-shell columns result in increased sensitivity (up to 10-fold) to detect the required lower levels of detection. Kinetex core-shell columns are currently available in three different configurations: bonded phases and shell, a highlighted list for highlighting the benefits of the core-shell technology for food safety applications. Analytical methods to be used with Kinetex C₁₈ (off-line) in packed buffer were analyzed using Kinetex FFP and monomer and glycerol-water in-batch format were analyzed using Kinetex HPLC.

For additional technical notes, visit www.phenomenex.com Page 1 of 3

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The advertisement features a central image of a shopping basket filled with fresh vegetables and fruits, including broccoli, carrots, and lemons, set against a red and white checkered tablecloth. The background is a gradient of orange and red.

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