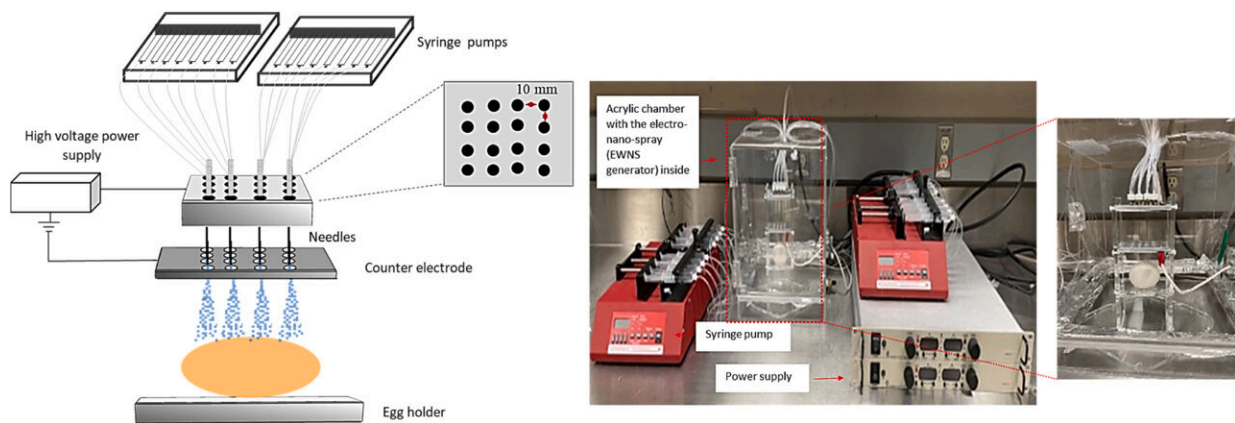


New egg decontamination method preserves nutritional quality

June 6 2024, by Victoria Schramm



Schematic and actual setup of the electro-nano-spray system developed for eggshell surface decontamination. Credit: *LWT* (2024). DOI: 10.1016/j.lwt.2024.116151

Scientists with the University of Saskatchewan (USask) used the Canadian Light Source (CLS) at USask to study a promising new technique for decontaminating eggs and recently published their findings. The work is [published](#) in the journal *LWT*.

The problem with conventional egg decontamination processes, which use chemicals and heat, is that they can damage the egg cuticle and shell, which are natural barriers to bacteria and help to maintain nutritional quality during storage.

The new cleaning method involves treating eggs using tiny water droplets sprayed with high-voltage electricity to decontaminate the shell. The researchers then used the CLS's ultra-bright synchrotron light to obtain highly detailed 3D scans of the eggs.

The researchers found the new approach significantly reduced the amount of *E. coli* and *Salmonella* bacteria on the eggs, but did not damage the cuticle and shell and preserved the food's nutritional quality.

"We hope this new technique is added to the existing egg processing line, to ensure thorough removal of pathogens from the egg surface," said team member Mehdi Heydari, a postdoctoral fellow with USask's College of Engineering. "This can help ensure the eggs on grocery store shelves are as safe to eat as possible." Heydari worked alongside other USask scientists, including principal investigator Lifeng Zhang and co-investigators Karen Schwean-Lardner and Shelley Kirychuk.

"Using this emerging, [green technology](#) would improve [food safety](#) while also lowering [carbon dioxide emissions](#) during processing," he added.

The next step for this research will be to determine how to scale up this technology for large-scale operations.

More information: Shiva Aminian et al, Application of novel engineered water nanostructures techniques for eggshell surface decontamination, *LWT* (2024). [DOI: 10.1016/j.lwt.2024.116151](https://doi.org/10.1016/j.lwt.2024.116151)

Provided by University of Saskatchewan

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