

U.S.: Researchers find steam makes melons safer than conventional treatments

An Agricultural Research Service (ARS) scientist has found that steam can more effectively combat bacteria on melons than conventional treatments, and is now expanding the research to include other produce items.

Dike Ukuku and his colleagues at the ARS Food Safety and Intervention Technologies Unit in Pennsylvania demonstrated that a relatively inexpensive steam cleaner designed to remove wallpaper and clean outdoor grills can rid cantaloupes of *E. coli*, *Salmonella*, and *Listeria* more effectively than existing washes and chlorine treatments.

He believes that as well as making produce safer, the treatment method could save packers and distributors both time and money.

Speaking to Fresh Fruit Portal, Ukuku said melons were normally treated by putting them in a dump tank for a few minutes, but the recent research involved applying steam instead.

“We found out that if we keep the steam nozzle at the particular distance, the physical characteristics of the produce are not damaged and we can achieve a maximum kill of the bacteria,” he said.

The study involved first submerging cantaloupes in a bath inoculated with strains of the bacteria. After drying and refrigeration, the cantaloupes were cleaned with steam.

Pathogen levels on the surfaces of the steam-treated melons were generally 1,000 times lower than those on untreated melons. Pathogens on cut-up pieces of the cantaloupes were reduced beyond detection, while pathogen levels on steam-treated cantaloupes were about 100 times lower than those found on cantaloupes sanitized with chlorine.

Ukuku explained the treatment could be applied either with a steam nozzle spraying the fruit in a sweeping motion, or by using several nozzles at a fixed distance from the melons moving on a conveyor belt.

Alternatively, the entire melons may be moved into a tunnel chamber with several nozzles for three minutes treatments before being removed in order to cool. Faster killing of bacteria was

registered with this method, which the team attributed to the melons having more contact time than when the nozzle moved in a sweeping motion.

Ukuku described steam treatment as an “excellent tool” for combatting bacteria, adding it could also be used to treat the packaging container.

“We have been getting a lot of calls from the industry – they’re very happy with these findings we’ve published,” he said.

As well as melons, Ukuku said steam had also been used to effectively treat cucumbers and walnuts. The next step in the research is to modify the steam nozzle to accommodate other types of produce like apples, but he said this was more challenging as they were more heat-sensitive.

“Apples have a very thin skin, so if you treat it improperly it will discolor and it won’t be marketable. We’ve been able to get a lot of reduction, but we are trying to determine the optimum distance,” he said.

Lien article : <http://www.freshfruitportal.com/news/2017/03/10/u-s-researchers-find-steam-makes-melons-safer-conventional-treatments/>