Targeting Salmonella in Restaurants

When I was approached by Bio-Science to volunteer as mentor to high school students on a project in microbiology, it was around the latest news regarding *Salmonella* found in restaurants.

From this, the project 'Targeting *Salmonella* in Restaurants' became a reality.

The purpose of our research is to raise awareness of how important it is to handle food in a safe way in restaurants *and even in our home kitchens.*

Thanks to so many enthusiastic restaurants owners, the project started in Dec 2007 and I will detail how we did the experiment.

Safety is always number one priority in our laboratory.

The students involved in the project were taught how to handle one of the most *notorious bacteria* in food products. Under strict supervision and dressed in white coats as well as wearing gloves and with fresh knowledge on QA/QC how to protect ourselves and avoid cross-contamination, the students went to work.

The confidentiality agreement was signed by IMS and students not to disclose any restaurants names. Also, in the case that *Salmonella* is found, IMS would offer free consulting to solve the problem.

The study was divided in two parts:

1. Swabs were taken from different areas in restaurants. The test for *Salmonella* was done on cutting boards, serving shelves, dishwashing table, meat slicer, and hot shelves.

The results: 100% *Salmonella species* negative.

2. The second part of the project was carried out in the lab, testing Sanitizers used in restaurants against ATCC *Salmonella species* culture. The two different strain cultures with a dilution of 10^{-4} were used. The procedure for *Salmonella* testing is one of HPB method, accredited by Standard Council of Canada.

Cutting boards were first sterilized, and then contaminated with each *Salmonella* strain, disinfected, left for a period of time, swabbed and tested.

The sanitizers used were 144 Quat + LT Enviro Chemical, Sanitizer 144 Quat Diluted, LT 500HW Sanitizer, 144 Quat Concentrate Sanitizer, LT Sanitizer Enviro Chemical

The contamination with *S.tiphymurium* was left for a length of time of 15-20 minutes before and then tested.

The results were negative using *S. tiphymurium* strain

The same sanitizers were used with *S. arizona* and left for 5-10 minutes before swabbing. This time, we had a ***Positive result*** on the cutting board sanitized with Diluted Sanitizer 144 Quat.

Conclusions:

The swabs tested in the restaurants were negative of *Salmonella spp*. The serving shelves swabs were completely clear of any bacteria. It is a positive thing, reassuring us of the restaurants' HACCP, in all restaurants participated on the project.

The presence of *Salmonella arizona* indicates that if bacteria are present and the disinfection is not done properly, a disaster is waiting to take place. Cells of *Salmonella* may be viable and once transferred to a ready to eat (RTE) product, in just few hours the person who ingested the food can be in a life-threatening situation. Different strains of *Salmonella* could be tougher for certain sanitizers to kill, especially if diluted.

This can happen not just in a restaurant but also in our home kitchen.

Make sure the whole area of any cooking or food preparation space is disinfected after handling raw food potentially contaminated with pathogens and leave it for 15-20 minutes. Afterwards, wash it and let it dry before re-using the area.

Use disposable gloves while handling raw meats products and/or between RTE foods, and always wash your hands according to the restaurant protocol.

Thank you to all restaurants who took part on this study. The students were very grateful to have the opportunity to work on the project involving real restaurants and one of the *most hunted food pathogens.*

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