

Is the Brooklyn, New York farmer's market local produce safe from *Enterococcus* Indicator species like *Salmonella* and *E. coli* (STEC 0157)? A survey using microbiological techniques.

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Abstract

Farmers' markets are attractive for local shoppers for fresh, less-processed, locally grown produce. However, reports suggest statistical correlation with such markets and outbreaks of fecal coliforms like *Salmonella sp.* and *Escherichia coli*; reinforces the need for investigation of our local produce. *Salmonella* and *E. coli* bacteria are associated with serious problems including gastroenteritis, typhoid, and paratyphoid, it can cause sepsis and kill you. Unfortunately, the majority of products we consume from farmer's markets contain *Salmonella*, which is a potential risk to food safety. To execute our hypothesis, we collected and analyzed selected produce (salads, vegetables and poultry) from the various farmers' market in Brooklyn and analyzed the presence of *Salmonella sp.* and *E. coli* by utilizing microbiology lab techniques. Findings from 6 locations (10 samples) indicate the presence of gram-negative bacteria in food. However, a significant result one obtained when one sample (lettuce) showed indication of *Salmonella* by serological analysis using Microgen latex agglutination beads. We therefore recommend collection of more diverse samples from more locations to justify our hypothesis.

Collection of Produce Samples from Brooklyn NYC Designated Farmer's Market

- Collected produce from NYC designated farmers' market and brought and analyzed three (3) popular grocery items (around 10-50 grams) in a provided sterile collection bags to the lab for analysis.
- The three types of samples were: a meat, packed salad (ready to eat) and a vegetables.

Brooklyn Farmers Markets

Farmers markets are located in all five boroughs! For a list of farmers markets near you, visit nyc.gov/health and search "farmers markets" or text "SoGood" to 877877

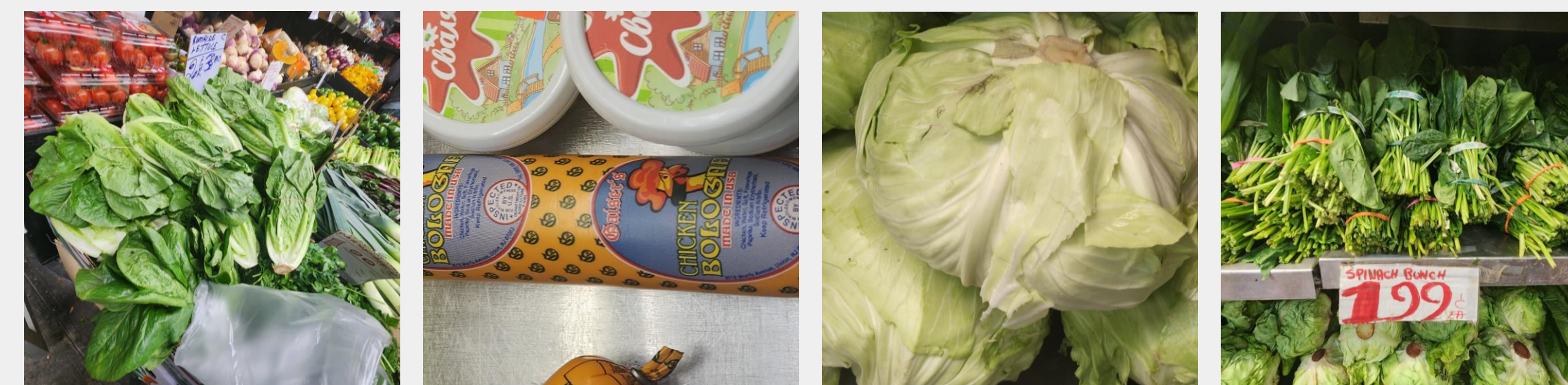
Sample Collection: Methods and Analysis

818 Flatbush Ave, Brooklyn, NY 11226



parsley Epazote Collard green Parsley

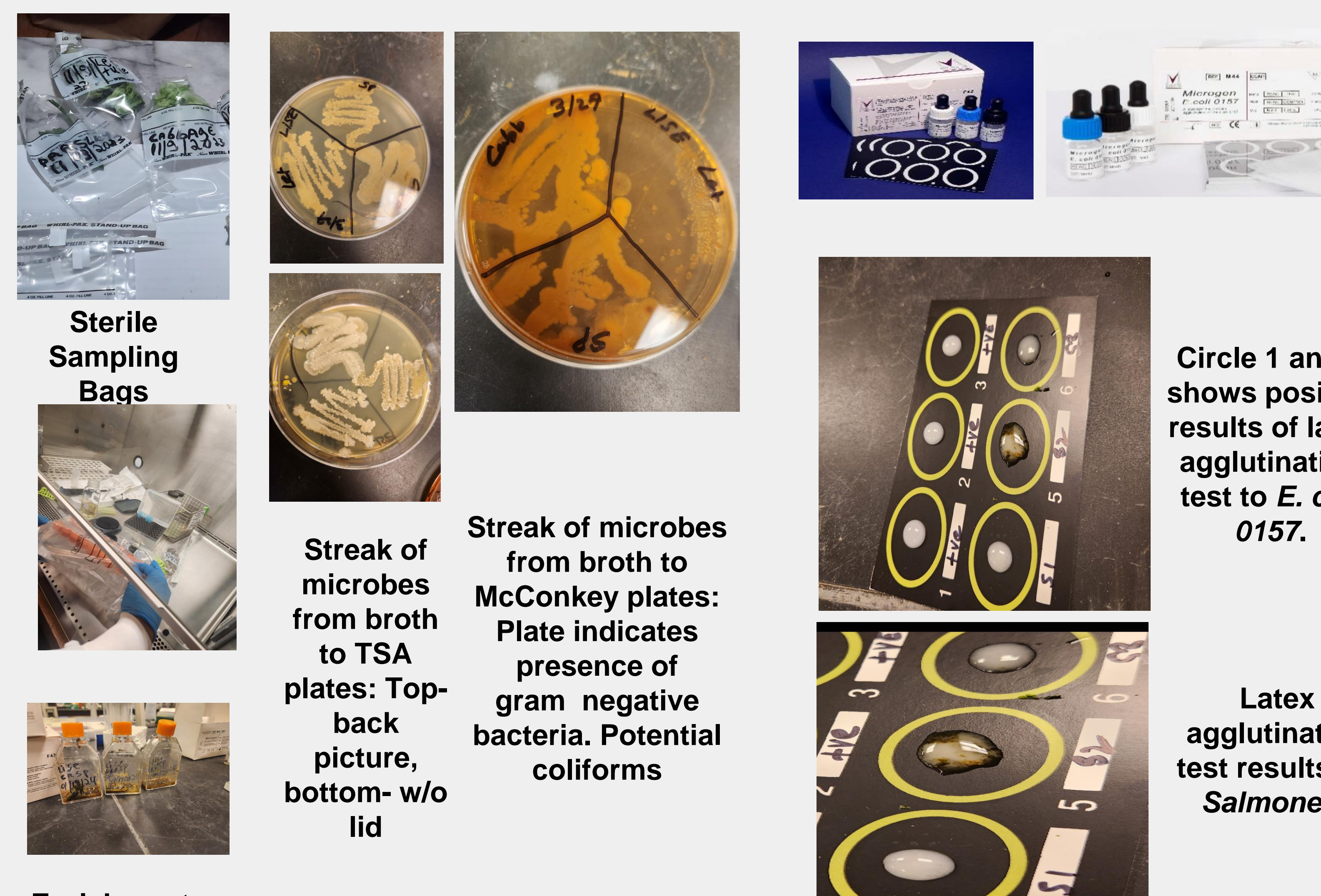
1055 Brighton Beach Ave Brooklyn, NY 11235



Romain lettuce chicken lettuce Spinach brunch

- 649 5th ave Brooklyn, NY 11215
- Nostrand ave, Brooklyn NY 11226
- 818 FLATBUSH AVE, BROOKLYN, NY 11226
- 1055 BRIGHTON BEACH AVE BROOKLYN, NY 11235
- Kings meats east 16th and quieten RD
- 6556 Flatbush ave Brooklyn NY 11226

Results and Observations



Sterile Sampling Bags

Streak of microbes from broth to TSA plates: Top-back picture, bottom- w/o lid

Streak of microbes from broth to McConkey plates: Plate indicates presence of gram negative bacteria. Potential coliforms

Circle 1 and 3 shows positive results of latex agglutination test to *E. coli* 0157.

Latex agglutination test results for *Salmonella*

Enrichment of microbes from samples in EE Mosel Broth

Summary and Conclusion

- Till date, samples from 6 Farmer's Market is collected, processed, analyzed and interpreted for their findings.
- Briefly, samples were categorized to three groups: 1. poultry/meat 2. salad (ready to eat) 3. Greens (vegetables cooked and eaten).
- We observed a higher percentage of pathogenic coliforms in greens. (*E. coli* out of 10 analyzed).
- Microgen *E. coli* 0157 latex test was confirmed in three greens tested.
- We will continue collect samples from more Farmer's market and analyze.

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