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. Lise Bensona Gay: Mentor Dr. Anupam Pradhan Kingsborough Community College, The City University of New York, Brooklyn

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



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

arket 🖸	McCarren Park Greenmarket 💮 Union Ave. bet. Driggs & N. 12th St: + Saturday (8 a m + 2 m m)
alb Ave.	McGolrick Park's Down to Earth Farmers Market Russell St. & Nassau Ave., center of park + Sunday 10 a.m 4 p.m.)
arket 😤 Park W.,	Park Slope's Down to Earth 🛞 Farmers Market 4th St. & 5th Ave. • Sunday (10 a.m 5 p.m.)
trance 🤮	Pitkin Verde Farmers Market 2094 Pitkin Ave. • Tuesday (9 a.m 5:30 p.m.)
PL.	Project EATS Rockaway Farmstand 666 Rockaway Ave. • Friday (11 a.m 4 p.m.)
30	RB Bushwick Farmers Market at Maria Hernandez Park Knickerbocker Ave. & Starr St. + Saturday (9 a.m 4 p.m.)
d 🖸	RB Rheingold Archway Farmers Market 553 Bushwick Ave. • Sunday (10 a.m 4 p.m.)
ty	RB Pop Up Farm Stand 215 Cooper St. • Thursday (12 - 5 p.m.)
& 38th Sts. 🦉 m.)	Red Hook Farm Stand 560 Columbia St. + Saturday (10 a.m 3 p.m.)
th 4	Red Hook Farm Stand II W. 9th St. & Hamilton Ave. • Wednesday (12 - 7 p.m.)
, 4	Saratoga Farm Stand 2046-2050 Fulton St. + Saturday (9 a.m 2 p.m.)
) de vice st	South Williamsburg Greenmarket Taylor St. & Lee Ave. + Thursday (8 a.m 4 p.m.)
p.m.) 🤇	Urban Oasis Farmers Market (NO EBT) 681 Clarkson Ave. + Wednesday (2 - 5:30 p.m.)
n.)	Woodhull Hospital Youthmarket Broadway & Flushing Ave. + Wednesday (9 a.m 2 p.m.)
reenhouse	Wyckoff House Museum Farm Stand (NO EBT) 5816 Clarendon Rd. • Saturday (11 a.m 3 p.m.)
)	

NVG Cooking Demonstrations 🥸 = Year-Round Farmers Market

parsley

Sample Collection: Methods and Analysis

818 Flatbush Ave, Brooklyn, NY 11226



Epazote



Collard green

1055 Brighton Beach Ave Brooklyn, NY 11235



Romain lettuce



chicken



lettuce

Results and Observations



Sterile Sampling Bags





Enrichment of microbes from samples in **EE Mosel Broth**



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



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

Parsley

Spinach brunch

1. 649 5th ave Brooklyn NY 11215 2. Nostrand ave , Brooklyn NY 11226 3.818 FLATBUSH AVE, **BROOKLYN, NY 11226** 4.1055 BRIGHTON BEACH **AVE BROOKLYN, NY** 11235 5.Kings meats east 16th and quieten RD 6.556 Flatbush ave Brooklyn NY 11226





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

Latex agglutination test results for Salmonella









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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