B-09 B 09

Reduction of microbial viability on leafy green vegetables by traditional household's methods

By

Project proposal submitted to the National science foundation for the science research project competition

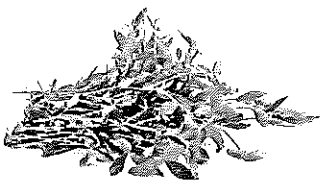
2017

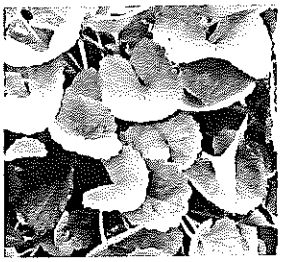
1.Title

Reduction of microbial viability on leafy green vegetables by traditional household's methods.

2. Introduction

During the ancient time the leafy vegetables are main part of our food and over the past 10 years, there is an increasing demand for leafy green vegetables and their ready-to-eat (RTE) salads since people changed their eating habits because of healthier lifestyle interest. Nevertheless fresh leafy green vegetables and their RTE salads are recognized as a source of food poisoning outbreaks in many parts of the world. In Sri Lanka also it have revealed links between some pathogens and some leafy green vegetables such as mostly kankung, gotukala, mukunuvenna and lettuces and spinaches and their RTE salads since fresh leafy green vegetables carry the potential risk of microbiological contamination due to the usage of untreated irrigation water, inappropriate organic fertilizers, wildlife or other sources that can occur anywhere from the farm to the fork such as failure during harvesting, handling, processing and packaging. Among a wide range of pathogens causing foodborne illnesses, *Escherichia coli* O157:H7, *Salmonella* spp., and *Listeria monocytogenes* are the most common pathogens that contaminate leafy green vegetables. Children, the elderly, pregnant women and immune compromised people are the most at risk for developing complications from foodborne illness as a result of eating contaminated leafy greens or their RTE salads(Taban M.B. and KadirHalkman (2011).





Common name: Mukunuvenna Common name: Kankung Common name: gotukola

Scientific name: *Alternanthera sessilis* Scientific name: *Ipomoea aquatic Centella asiatica*

In Sri Lanka most of house wives used traditional methods such as adding salt water to leafy vegetables, washing, adding turmeric powder to eliminate the microbial contaminations to reduce risk before make fresh food items.

3. Hypothesis

Standard procedure will be effectively reduced microbial count in leafy vegetables

4. Objectives

4.1 General objective

- Determination of microbial counts in most common leafy vegetables in Sri Lanka collected from various areas in Colombo district.
- Identification of microbes.
- Determination of microbial counts after treats the leafy vegetables. (Salting, washing etc..)
- Identify most effective method to reduce microbial counts.
- Develop most effective standard method to reduce microbial count in leafy vegetables

.

5. Materials and methods

5.1 Method

Estimation of Initial microbial contents in leafy vegetables with standard plate count method and identify the most common microbes in leafy vegetable samples. Then apply most common treatment use in home scale and check the effectiveness of it on reduction of microbes. Select most effective method and make standardize method to apply to reduce microbial load in leafy vegetables.

5.2 Equipments

- Euipments to micromiological analysis- incubators, oven, rotators , microscopes etc…

5.3Chemicals

Microbiological medias agar and other ingredients

6.Research plan

Activity	Time period															
Month	July		August				September				October				November	
Week	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Analyzing information																
Collecting samples																
Taking initial plate counts																
Identify the most common microbes																
Apply treatment and asses the microbial count																
Standardization of the procedure																
Data processing and analysis																
Report preparation and submission																

References

Taban M.B. and KadirHalkman,**(2011),** Do leafy green vegetables and their ready-to-eat [RTE] salads carry a risk of foodborne pathogens? Anaerobe, Volume 17, (6), P .286-287

Gil et al.(2015), Pre- and Postharvest Preventive Measures and Intervention Strategies to Control Microbial Food Safety Hazards of Fresh Leafy Vegetables, Journal of Food and Nutrition, Volume 55(V)

PROJECT MEMBERS		
Name		
NIC No.		
Signature		
Email		
Telephone Number		
The Teacher In charge Of The Project		
Name		
NIC No.		
Signature		
Email		
Telephone Number		
.....	.....	.....
Principal Signature	Official Seal	Date