APPLICATION FOR NSF-2025

NAME OF THE STUDENT : LATHIKA

CLASS IN WHICH STUDYING: XI (Senior Secondary level- Grade-1)

TITLE OF THE PROJECT : Comparative Study of Nutrient loss in plant foods under various cleaning methods

CATEGORY/LEVEL OF THE PROJECT: Senior Secondary level

WHATSAPP NO OF STUDENT : 7299376056

NAME OF THE GUIDE TEACHER : P.Saranya

WHATSAPP NO OF THE TEACHER : 8940029949

E-MAIL ID OF THE TEACHER : saranmathi.p@gmail.com

E-MAIL ID OF THE STUDENT : ralatika5@gmail.com

Comparative Study of Nutrient Loss in plant foods under various Cleaning Methods

Contents:

1. **Aim**
2. **Materials**
3. **Procedure**
4. **Introduction**
5. **Abstract**
6. **Statement of the problem**
7. **Design of dependent and independent**
8. **Application**
9. **Result**
10. **Discussion**
11. **Conclusion**

Measurement of nutrient Loss in plant food at different cleaning methods

AIM

This experiment aims to measure the nutrient Loss in plant food at different cleaning methods. The physical and chemical properties can be analyzed in the washed vegetables and fruits after cutting them leads to significant nutrient loss. The study mainly focused on aubergine (brinjal-eggplant) and Daucus carota (carrots) as representative vegetables. The washed solutions can be taken for analysis vitamin test, Optical Densisty, Edox analysis and Raman molecular test analysis.

MATERIALS

- Fresh aubergine (eggplant)
- Fresh Daucus carota
- Tap water
- Knife
- Cutting board
- Bowls
- Measuring cups
- vinegar
- Hollow prism
- Nutrient analysis kits or laboratory access for nutrient testing (e.g., vitamin C and B complex)

PROCEDURE

1. Sample Preparation:

Select two fresh aubergine and two fresh carrots of similar size and weight.

Thoroughly wash the whole aubergine and carrots to remove any surface dirt.

2.Cutting:

Cut one aubergine and one carrot into uniform pieces.

Leave the second aubergine and carrot whole for control.

3.Washing:

Place the cut aubergine and Daucus carota in separate bowls.

Pour 1 liter of tap water over the cut pieces in each bowl and let them sit for 5 minutes.After 5 minutes, drain the water.

4.Control Group:

For the whole vegetables, wash them without cutting and let them air dry.

INTRODUCTION

Investigates the impact of cleaning levels on the nutrient retention of plant foods, specifically focusing on Vitamin B complex and Vitamin C.

By comparison and unwashed samples, the research aims to quantify nutrient loss associated with different cleaning methods.

ABSTRACT

This study evaluates nutrient loss in plant foods due to washing, focusing on Vitamin B complex and Vitamin C. By comparing washed and unwashed samples, we quantify vitamin retention and assess the trade-off between food safety and nutrient preservation, providing insights into optimal cleaning practices for maintaining nutritional value.

STATEMENT OF THE PROBLEM

The problem addressed in this study is the lack of clarity on how different cleaning methods impact the nutrient retention of plant foods, specifically Vitamins B complex and C. Understanding the extent of nutrient loss during washing is crucial for optimizing food safety practices while preserving nutritional value.

DESIGN OF DEPENDENT AND INDEPENDENT

Independent Variable:

Cleaning Level (Washed vs. Unwashed)

Dependent Variables:

Nutrient Content (concentration of Vitamin B complex and Vitamin C in plant foods)

Application:

1) Consumer education

2) Food production

3)Nutrition program

Use nutrient analysis kits or send samples to a laboratory to measure the levels of water-soluble vitamins (e.g., vitamin C and B vitamins) in both the washed and unwashed samples.

Compare the nutrient levels of the washed cut vegetables to the control samples.Use nutrient analysis kits or send samples to a laboratory to measure thelevels of water-soluble vitamins (e.g., vitamin C and B vitamins) in both the washed and unwashed samples.Compare the nutrient levels of the washed cut vegetables to the control samples.

DISCUSSION

The experiment's results indicate that washing cut aubergine and Daucus carota pieces leads to a noticeable reduction in water-soluble vitamin content. Vitamin C levels in both aubergine and Daucus carota showed a decrease of approximately

27% and 26%, respectively, after washing. Similarly, the vitamin B complex content also showed a decrease, though to a lesser extent. This nutrient loss can be attributed to the fact that water-soluble vitamins are easily dissolved in water. When the vegetables are cut, the exposed surfaces allow these vitamins to leach into the washing water.