Project Report

Topic : Testing of Commercialized pickle and Homemade pickle

SATHYANA RAYANAN VENKATA KRISHNAN	**16BBT0255**
MOHITH MANOMOHANAN	**16BBT0138**
AZAM ANAS	**16BCM0084**
SWAGATH KUMAR BARAJ	**16BBT0045**
SOURISH ZEN	**16BCB0027**
MAHESH GOWD	**16BBT0242**

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Name of faculty : Dr. JAYANTHI S

(SCHOOL OF BIO SCIENCES AND TECHNOLOGY)

CERTIFICATE

This is to certify that the project work entitled "Testing of Commercialized Produced pickle and Homemade pickle" that is being submitted by "**Mohith.M, Sathyanarayanan.V ,Azam Anas, Sourish Zen, Mahesh Babu, Swagath Bharaj**" for Food,Nutrition, & Health (BIT1026) is a record of bonafide work done under my supervision. The contents of this Project work, in full or in parts, have neither been taken from any other source nor have been submitted for any other CAL course.

Place: Vellore,Tamil Nadu

Date:

Signature of students:

Azam Anas

Sathyanarayanan Venkatakrishnan

Mohith Manomohanan

Sourish Zen

Swagath Kumar Baraj

Mahesh Gowd

Signature of Faculty:

Dr. Jayanthi S

ACKNOWLEDGEMENT

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AZAM ANAS

MOHITH MANOMOHANAN
SOURISH ZEN

SWAGATH BHARAJ

SATHYANARAYANAN

MAHESH GOWD

(16BCM0084, 16BBT0138, 16BBT0142, 16BBT0045, 16BBT0255, 16BCB0242)

INTRODUCTION:

What is food preservation? The answer lies in its name only, it basically means any one of the number of techniques used to prevent food from spoiling, canning, pickling, drying, freeze-drying, irradiation, pasteurization and the addition of chemical additives.

The method, which we are focusing on our project, is pickling. Our main objective is to study how pickles prevent the growth of microorganisms and to compare the anti-microbial activity of home-made pickle and market pickle.

PICKLING

Pickling is the process of preserving or expanding the lifespan of food by either anaerobic fermentation in brine or immersion in vinegar. The resulting food is called a pickle, or, to prevent ambiguity, prefaced with the adjective pickled. The pickling procedure will typically affect the food's texture and flavor. In East Asia, vinaigrette (vegetable oil and vinegar) is also used as a pickling medium. Foods that are pickled include meats, fruits, eggs, and vegetables.

Another distinguishing characteristic is a pH of 4.6 or lower, which is sufficient to kill most bacteria. Pickling can preserve perishable foods for months. Antimicrobial herbs and spices, such as mustard seed, garlic, cinnamon or cloves, are often added.[3] If the food contains sufficient moisture, a pickling brine may be produced simply by adding dry salt. For example, German sauerkraut and Korean kimchi are produced by salting the vegetables to draw out excess water. Natural fermentation at room temperature, by lactic acid bacteria, produces the required acidity. Other pickles are made by placing vegetables in vinegar. Unlike the canning process, pickling (which includes fermentation) does not require that the food be completely sterile before it is sealed. The acidity or salinity of the solution, the temperature of fermentation, and the exclusion of oxygen determine which microorganisms dominate, and determine the flavor of the end product.

INSIGHT INTO THE PAST - HISTORY OF PICKLING

Pickling began 4000 years ago using cucumbers native to India.This was used as a way to preserve food for out-of-season use and for long journeys, especially by sea. Salt pork and salt beef were common staples for sailors before the days of steam engines. Although the process was invented to preserve foods, pickles are also made and eaten because people enjoy the resulting flavors. Pickling may also improve the nutritional value of food by introducing B vitamins produced by bacteria.

PROCEDURE :

1)Firstly, we sterilized the components we needed for our project such as petri dishes, test tubes, test tube holder, conical flask etc. We sterilized all these components in pressure cooker.

2)Then we prepared our media which consisted of 2.8mg of agar-agar, 100ml of distilled water. After preparing media, we went for serial dilution.

3)To make serial dilution we added 1ml of the pickle liquid to 9ml of sterile water and made 1:10 dilution. Adding 1ml of the 1:10 dilution to 9ml of distilled water makes a 1:100 dilution.

4)In this way, we made subsequent dilution in ratio of 1:1000, 1:1000 etc. The number of bacteria was reduced by 9/10 in each dilution.

5)After we were done with the serial dilution, we went for pour plate technique.

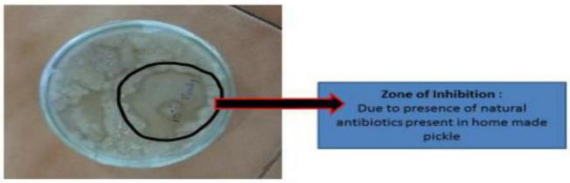
6)Pour plate method is usually the method of choice for counting the number of colony-forming bacteria present in a liquid specimen. In this method, fixed amount of inoculum from a broth/sample is placed in the center of sterile Petri dish using a sterile pipette.

7)After pour plate technique we kept it in the incubation for 24hrs and after 24hrs due to presence of natural antibiotics in home made pickle we observe zone of inhibition while we don’t observe it in market made pickle.

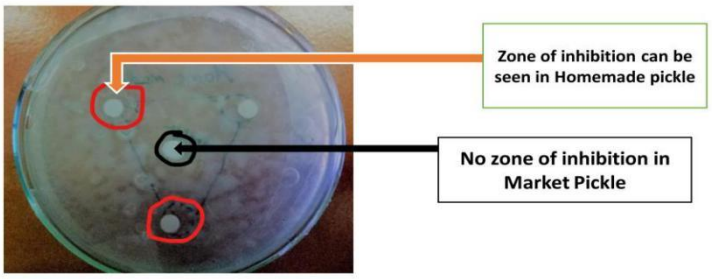
Home Made Pickle sample

Market Pickle Sample

After 24 Hrs



Observation



RESULTS :

->These tests were conducted to understand the difference between Homemade and Commercialized pickle.

->And which ones are better and these observation show that the tests went in our favor.

->The zone of inhibition of Homemade pickle was larger than the zone of inhibition of the Market pickle.