

Aussan Laboratories Pvt. Ltd.

Aim:

Effect of L44F solution on cut onions (4 types of chopped onion) in refrigerator using pH meter calibration method

Requirements:

L44- F, Clean drinking water, Containers for dilution making , weighing machine, Syringe, pH meter ,gloves , Mask , Acid and base buffer solutions for pH calibration, sterilized glass containers with lid, thermometer

Dilutions used for sample washing : Control, ½ ml, 1 ml per liter of water

Quantity of Total Onion: around 1-2 kg

Total Quantity of each sample: Each 30gms

Samples:

4 different types of chopped onion

1. Medium sized – horizontal
2. Cubes – vertical
3. Slices – rounded
4. Finely chopped

Condition:

Open container – 12 (No any covering)

Close Container – 12

Refrigerator Temperature requirement: below 9 deg. Cel.

REFRIGERATOR TEMPERATURE: (Control, 0.5 ml and 1ml – 3 samples of each type)

- 3 open container samples of cut onion and 3 close for each type of chopped onion–
- **24 room temp sample – 12/12 – open / close samples**

Total: 24 samples for observation

Observation criteria:

1. Prepare buffer solution of 4 and 7
2. Calibrate pH meter at initial and every pH measurement
3. **Sensory:** Taste, Smell , touching like observing stickiness , visualizing color like browning
4. Observation required for after every 4-5 hours:
 - By grinding sample onion and measuring pH using pH meter.

Observation Details: pH meter

1. Initial pH – 10 gm of onion paste with 90 gms of water – Measure pH and it is 5.9
2. 2gms of onion from sample paste it and add 18 gms of water – measure pH (4-5 hours sample observations)

Note:

First trial will be on Refrigerator sample:

REFRIGERATOR samples: (Control, 0.5 ml and 1ml – 3 samples of each type)

- 3 open container samples of cut onion and 3 close for each type of chopped onion–
- **24 room temp sample – 12/12 – open / close samples**
- **All the attributes to be measured are mentioned in excel sheet**

<https://drive.google.com/drive/u/0/folders/19lg8cU4Fu3LTCeo2OpC3OhjlvPPAerZ>

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Methodology :

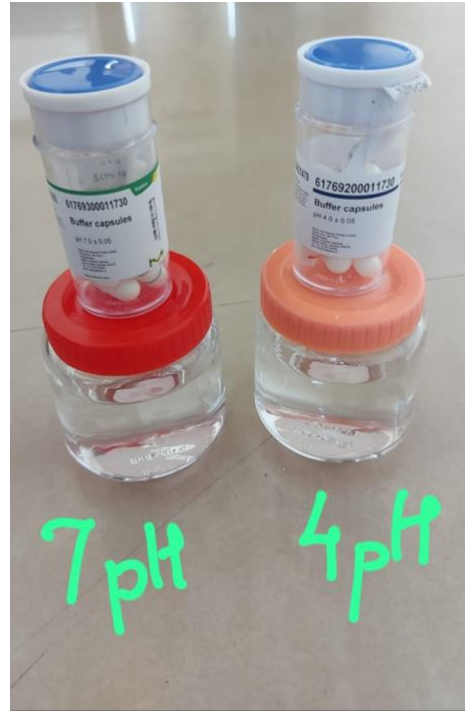
Initial pH of Onion is 5.9

Initial sample images : Refrigerator temp : 9 deg. cel. , quantity of each sample : 30gm , pH is normal , calculated thrice in a day (5-10-2023) , Sensory observation all normal.

Sterilization process:



pH buffer



Reading



Soaking samples in dilution for 2 mins (Mandatory)





**From day 1 to day 8 , All samples were normal with respect to sensory.
from 7th and 8th day , dryness of control open sample started and rest all ok
and
pH of all control samples were reduced little , but 0.5ml and 1ml was in range as
compared to previous pH**



13 day till 18 day, icing of 0.5 started of control samples



But close container of 1ml treated all are in good condition

21 days observation: some samples of Control, 0.5 ml treated close containers like finely chopped , vertical cuts are icy and soggy , but medium sized are ok but 1ml treated all types of samples are normal in condition.

pH is in excel sheet



control round shape cut onion little lost in smell



vertical slices of control left some water..



0.5 ml treated lost smell little.



All 1ml treated samples are normal in condition after 21 days.

Separate pics of 1ml treated samples

Factors to consider :

- 1. Home based on refrigerator sample with 9 deg. cel. temp. with a clean and sterilized container.**
- 2. Due to reduction in sample quantity pH taken limited day based on physical change**
- 3. The icing of the sample may be because of less quantity of sample.**

Close container : Treated Images with sensory of 1ML treated samples with pH measurement

Day - 1 pH (5.9-6)

Day-2 pH(5.7 to 5.8)



All sensory Normal (pH also normal)

Day -7 (sensory normal ph slightly reduced but in Range , Acceptable) pH(5.8 to 6)



8day pH(5.5 to 6)



Day 18 (sensory all normal and pH was stable) pH(5.5 to 6)



Day 21 Little color change seen , but sensory acceptable. pH reduced but acceptable



Day 24 sensory lost (Smell, yellowish color on some samples seen)



Conclusion :

- Treatment of L44 dilution on cut onion enhances shelf life in refrigerator under controlled condition by sterilizing containers, proper hand sanitization, maintaining constant refrigerator temp as 9 deg. Cel.
- Control samples and ½ ml treated gets iciness/ sogginess/watery feel in onion samples from 8th day to 18 days where as 1ml is fresh till 18 days to 21 -24 days