



# *ORAL HYDRATION SOLUTION WITH ADDITION OF PROBIOTIC*

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# INTRODUCTION

- ⦿ ORS (Oral hydration solution is special combination of
- ⦿ electrolytes and sugar that is mixed with safe water .
- ⦿ It can help the dehydrated patients in many different reasons ;  
1\_ Excessive Sweating                      2- vomiting                      3- diarrhea



The four ingredients of ORS (***glucose, sodium chloride, potassium chloride and trisodium citrate***) in the concentrations described in this document yield an effective solution for rehydration and for the prevention of dehydration. The addition of other ingredients, such as other minerals (especially zinc) or vitamins,

New ORS	Grams /Liter	New ORS	Mmol/ Liter
Sodium chloride	2.6	Sodium	75
Glucose	13.5	Chloride	65
Potassium chloride	1.5	Glucose	75
Tri sodium citrate	2.9	Potassium	20
		Citrate	10
total	20.4	Total osmolarity	245



# REASONS TO ADD PROBIOTICS (LACTOBACILLUS)

Probiotics microorganisms which when consumed in adequate amounts confer a health benefit to the host

Lactobacillus is most commonly taken by mouth to treat and prevent diarrhea,  
many reasons:

\*\*\*non pathogenic and non toxic.

\*\*\*Aid absorption of minerals, especially calcium, due to increased intestinal acidity.

\*\*\*Produce vitamins (especially Vitamin B and vitamin K.

\*\*\* Act as barriers to prevent harmful bacteria from colonizing the intestines.

# HOW DOSE IT HELP

• bacteria such as lactobacillus can help us break down food, absorb nutrients, “  
Produce lactic acid- lowers the pH of intestines and inhibiting bacterial such as Clostridium and fight off “pathogenic

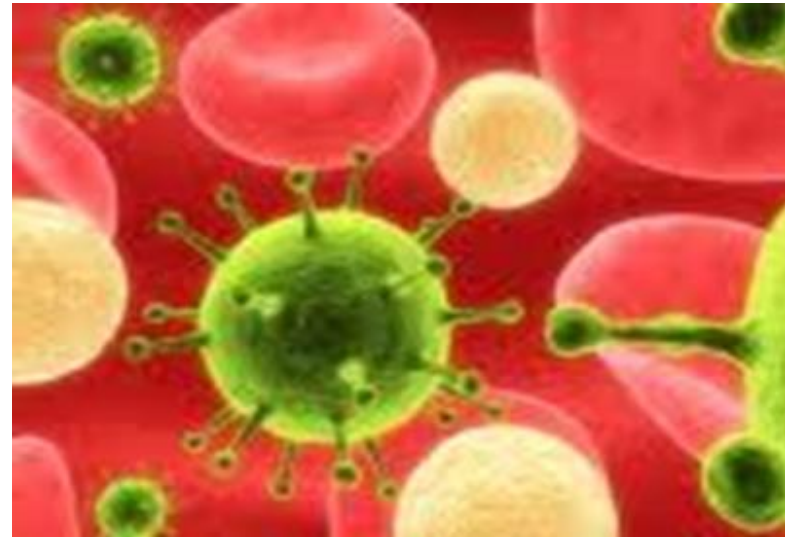
in Human Subjects for Probiotic Studies;

1- Diarrhea

2-Irritable bowel syndrome

3-gastrointestinal tract symptom

4-Inflammatory bowel diseases, ulcerative colitis,





# THE STEPS INVOLVED IN A PROJECT :

*1 - Market research of similar products*

*2 - Making basic solution on different basis*

*3 - Sensory analysis*

*4 - Addition of probiotic*

*5 - Testing shelf life*



# MARKET RESEARCH OF SIMILAR PRODUCT





# HOMEMADE ORAL HYDRATION SOLUTIONS

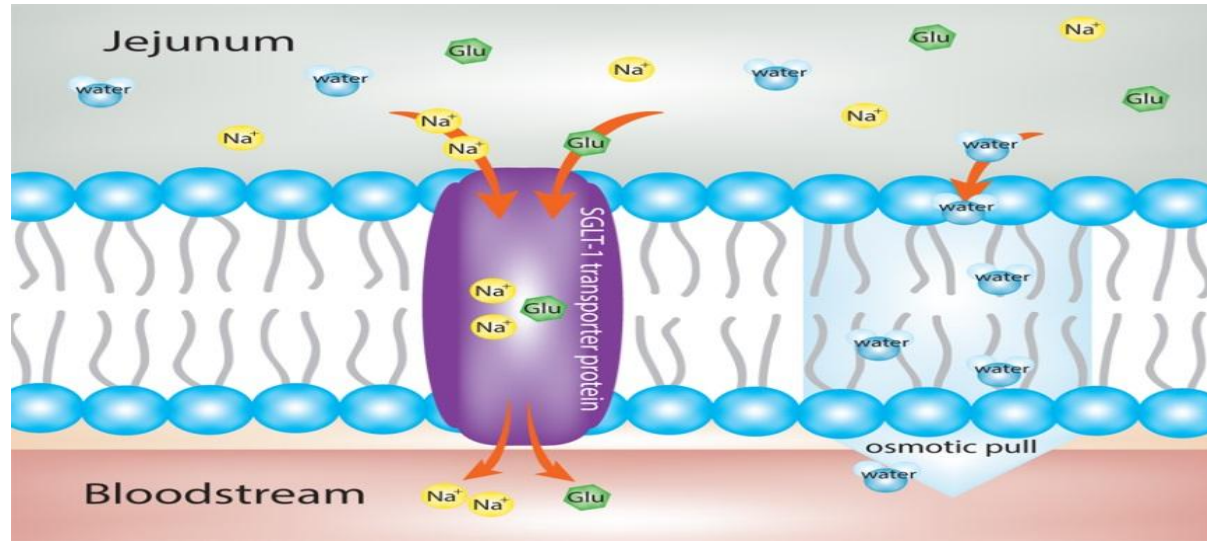
Base Beverage	Recipe
Water	1 quart water <ul style="list-style-type: none"><li>□ ¾ teaspoon table salt</li><li>□ 2 Tablespoons sugar</li><li>□ Optional:flaver</li></ul>
Gatorade® G2	4 cups Gatorade® G2 (or one, 32 ounce bottle) <ul style="list-style-type: none"><li>□ ¾ teaspoon table salt</li></ul>
Tomato Juice	2 ½ cups plain tomato juice (not V8 or bloody Mary mix) <ul style="list-style-type: none"><li>□ 1 ½ cups water</li></ul>
Cranberry Juice	¾ cup juice <ul style="list-style-type: none"><li>□ 3 &amp; ¼ cups water</li><li>□ ¾ teaspoons table salt</li></ul>





# IMPORTANT TO HAVE SPECIFIC OSMOLARITY

- Reduced osmolarity ORS  decrease STOOL OUT PUT 20%.
- The aim for this is to slowly release glucose into the gut and improve the absorption of water and salt .
- Reduced osmolarity ORS  were strongly encouraged to better assess any risk of symptomatic hypernatremia .
- Decrease vomiting 30%

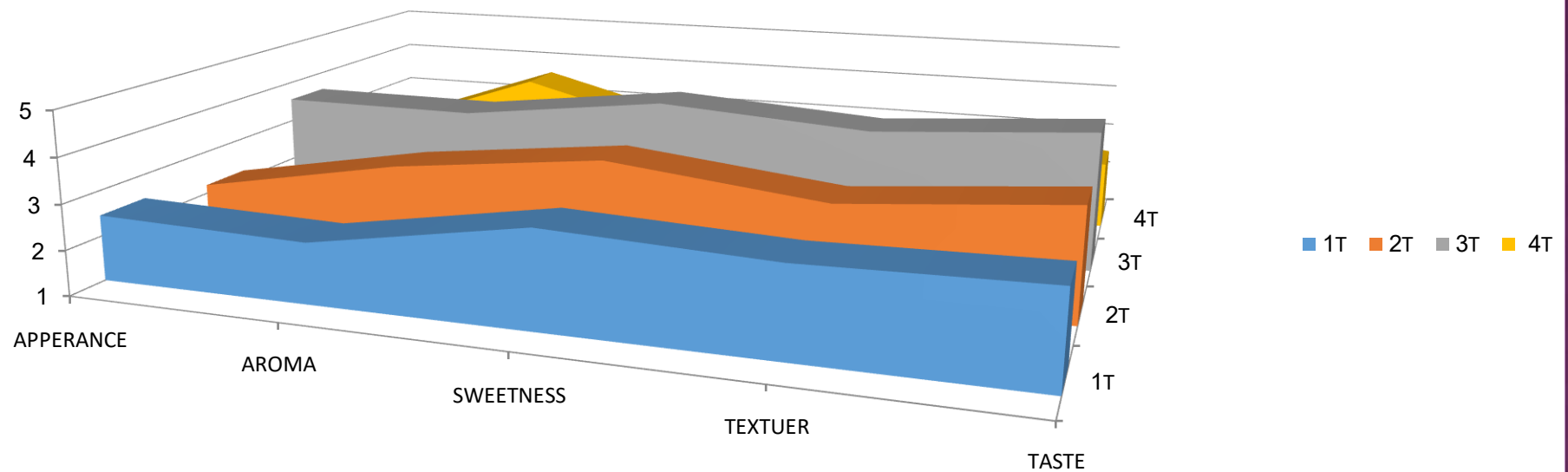


# SENSORY ANALYSIS



# ANALYTICAL TESTING

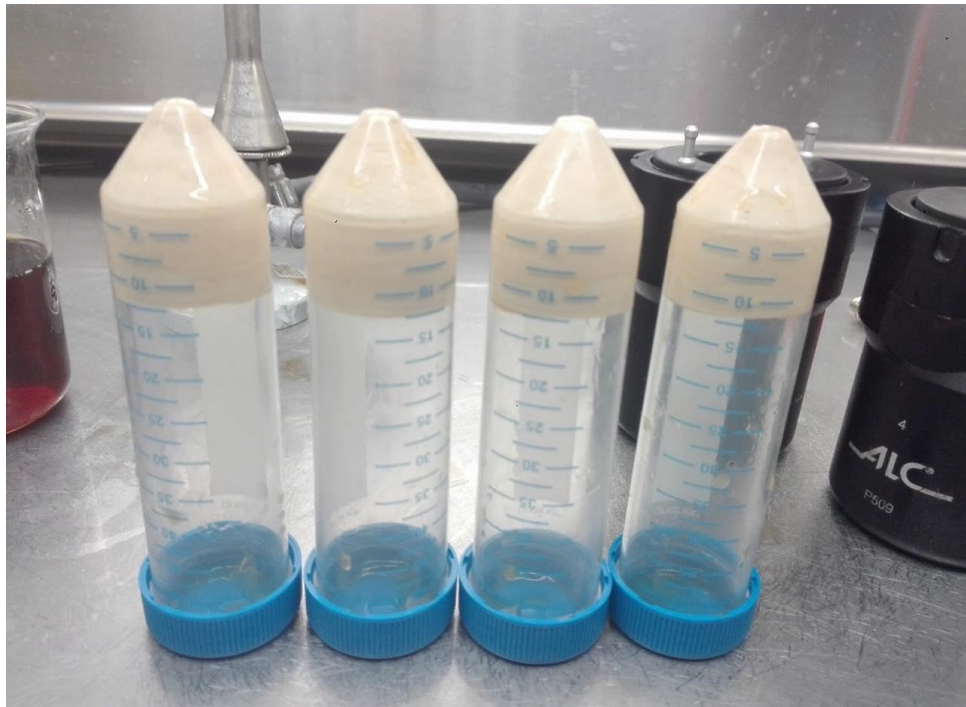
	<u>APPERANCE</u>	<u>AROMA</u>	<u>SWEETNESS</u>	<u>TEXTUER</u>	<u>TASTE</u>
<u>T1(Water)*****</u>	2.46	2.34	3.14	2.94	3.04
<u>T2(Gatorade® G2)</u>	2.2	3.06	3.6	3.08	3.5
<u>T3(Cranberry Juice)</u>	3.56	3.54	4.12	3.8	4.14
<u>T4 (Tomato Juice)</u>	2	3.66	2.43	3.01	2.54





# ***A GENERAL METHOD FOR ISOLATION LACTOBACILLI***

- ◉ ***Isolated Lactobacillus from broth by centrifuge process 4000 , 7 Celsius , 20 mint***



# *LACTOBACILLUS IN ORS*

## ◎ Steps :

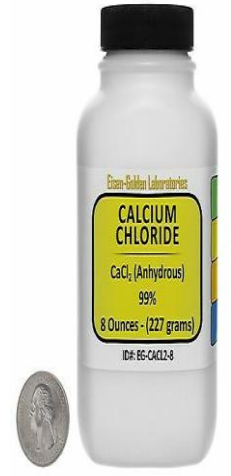
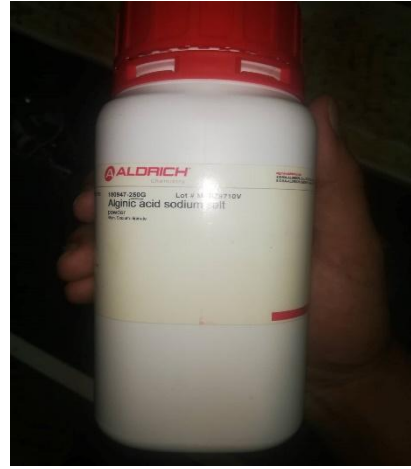
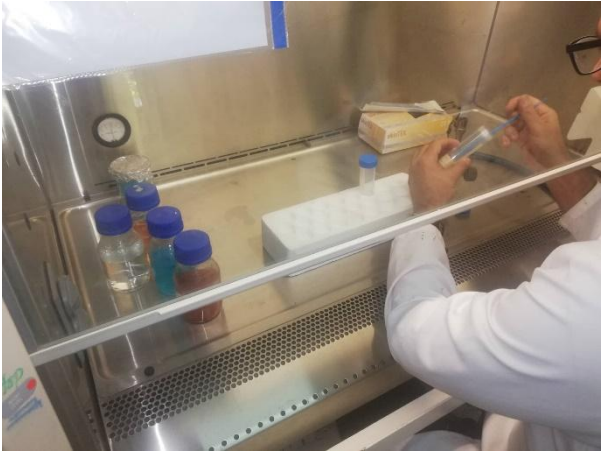
**1- We prepared a solution from 30ml *Lactobacillus* , with 2g polysaccharide(*Alginate acid sodium salt* ) diluted in 70ml Distilled water.**

**2- Then the result solution (100ml) divide to 5 samples , 20 ml for each sample ,**

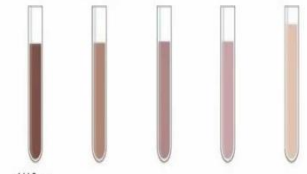
**3- then each sample was capsulated in the sample .**



# Addition of probiotic, Serial dilution



volume of aliquot = 1 mL  
volume of diluent = 9 mL



1/10 or 10^-1 dilution

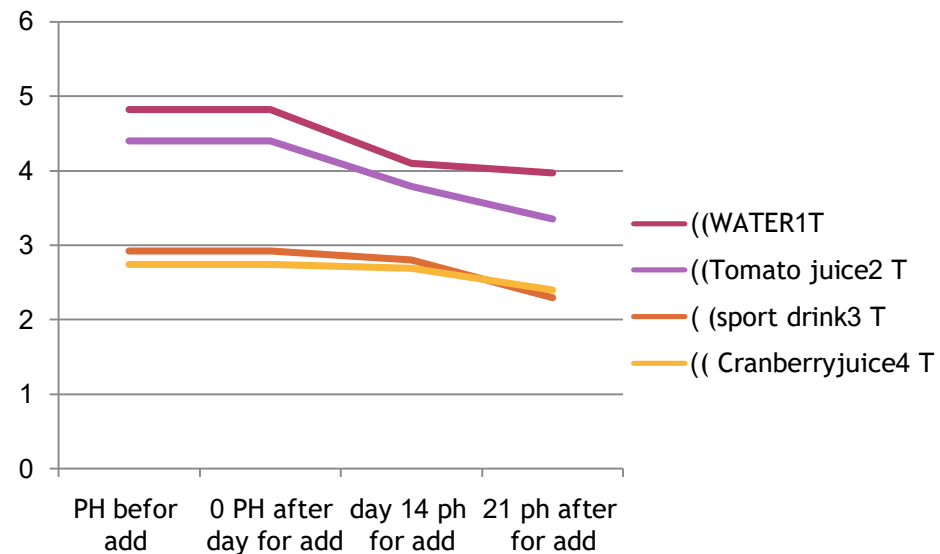


# RESULT , BACTERIAL COUNT

TIME _DAY 5	BC. CONTROL	BC . SPORT DRINK	BC. Cranberry Juice	BC . Water(ORS)	Tomato Juice
0 DAY	$7 \cdot 10^6$	0	0	$11 \cdot 10^5$	U.C
14 DAY		0	0	$8 \cdot 10^5$	U.C
21 DAY		0	0	$6 \cdot 10^5$	U.C

**In tomato juice sample the bacteria survives due to presence of some assistance material**

# Testing shelf life



	PH befor add	PH after 0 day for add	ph 14 day for add	ph after 21 for add
T1(WATER)	4.82	4.82	4.1	3.97
T2 (Tomato juice)	4.4	4.4	3.79	3.35
T3 (sport drink )	2.92	2.92	2.8	2.3
T4 ( Cranberryjuice)	2.74	2.74	2.69	2.4

**In the tomato juice and control samples , the bacteria survived until 21 days . While in sport drink and Cranberry Juice samples the bacteria hasn't grow.**

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# SUGGESTION , AND HOW WOULD WE OVER COME IF WE DID THIS AGAIN ?

***Extracting elements from medicinal herbs for example sagebrush  
and adding probiotics to it and as the consumer accepts its taste.***

***Increase shelf life of Lactobacillus inside the product .***

***Working in more accurate laboratories and more advanced  
equipment,***

