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VINEGAR MAKING

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'Our Business is Industry…"

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VINEGAR MAKING

INTRODUCTION

Don't throw the peels of banana and *kalabasa*, overripe fruits, rice washings and coconut water. These could find their way in your kitchen, as vinegar. Through natural fermentation processes, vinegar from these materials can be produced in the household and small industries.

Aside from being a condiment, vinegar is also used as acidulant, flavoring agents and preservative in foods. It is one of the raw materials in the preparation of various food products such as pickles, mayonnaise, etc.

Here's how to make vinegar from various local raw materials and/or food wastes.

BANANA PEEL VINEGAR

Materials Needed

1	kg	banana peels
8	cup	water
1½	cup	sugar
½	tsp	baker's yeast
1	cup	vinegar starter

Utensils Needed

measuring cup	chopping board	cheesecloth
measuring spoon	casserole	thermometer
knife	stove	wide-mouthed glass jars

Packaging Material

sterilized bottles/jars

Procedure

1. Slice a kilo of banana peel, add 4 cups water, then boil.
2. Extract the juice of banana peel, decant and filter through cheesecloth.
3. Add 4 cups water, 1½ cups sugar and pasteurize for 10 – 15 minutes at 60° -65°C.
4. Transfer into sterilized container, half-filled.
5. Cool, then add ½ tsp baker's yeast for every 8 cups mixture. Allow to ferment for 1-2 weeks.
6. Decant/siphon to separate sediments (dead yeast).
7. Add 1 cup of vinegar starter for every 4 cups liquid. Cover with clean cloth/paper.
8. Allow to ferment at room temperature for 2-3 weeks or until a sour odor of vinegar is attained. Decant to separate the sediments.
9. Fill container to full capacity. Age for a month to produce quality vinegar.
10. Pasteurize at 60°C for 5 minutes. Filter, bottle, seal tightly, label and store.

KALABASA PEEL VINEGAR

Materials Needed

1	kg	*kalabasa* peels & cores
1½	cup	sugar
½	tsp	baker's yeast
1	cup	vinegar starter

Utensils Needed

measuring cup	chopping board	cheesecloth
measuring spoon	casserole	thermometer
knife	stove	wide-mouthed glass jars

Packaging Material

sterilized bottles/jars

Procedure

1. Wash peels and cores of *kalabasa*, add three (3) parts water for every part of peel. Boil for 15 minutes.
2. Strain, add 4 cups water for every 4 cups of strained liquid from boiled peels/core.
3. Add ¾ cup sugar for every 4 cups diluted liquid.
4. Pasteurize at 60° – 65°C for 10-15 minutes
5. Transfer in a sterilized container half-filled and cool. Add ¼ tsp yeast for every 4 cups diluted liquid. Cover with clean cloth/paper.
6. Ferment for 2 to 3 weeks until alcohol content is about eight (8) percent by volume.
7. Pour gently the alcohol solution into another sterilized container so as not to disturb the sediments. Add one (1) cup vinegar starter for every four (4) cups of the solution. Cover with clean cloth/paper.
8. Set aside for 15-20 days then determine the acidity which is usually between 6-7 percent.
9. Decant/strain. Pasteurize at 60° - 65°C for 5 minutes.
10. Fill in sterilized bottle and seal tightly.
11. Label and store.

FRUIT JUICE VINEGAR

Materials Needed

2	kg	ripe fruits
6	L	water
2	tsp	baker's yeast
8	cup	vinegar starter
4	cup	sugar

Utensils Needed

measuring cup	chopping board	cheesecloth
measuring spoon	casserole	thermometer
knife	stove	wide-mouthed glass jars

Packaging Material

sterilized bottles/jars

Procedure

1. Mash pulp of ripe fruits (pineapple, etc.).
2. Dilute one (1) part of mashed fruit by weight with three (3) parts of water in a clean container. Extract juice by pressing through cheesecloth.
3. Add 4 cups sugar to every 32 cups (8L) of diluted fruit juice. Pasteurize at 60°C for 10-15 minutes.
4. Cool, transfer into sterilized container, half filled and add 2 tsp yeast.
5. Transfer in a sterilized container half-filled and cool. Add ¼ tsp yeast for every 4 cups diluted liquid. Cover with clean cloth/paper.
6. Ferment for seven (7) days until alcohol content is about eight (8) percent by volume.
7. Pour gently the alcohol solution into another sterilized container so as not to disturb the sediments. Add one (1) cups vinegar starter for every four (4) cups of the solution. Cover with clean cloth/paper.
8. Set aside for 15-20 days then determine the acidity which is usually between 6-7 percent.
9. Decant/strain. Pasteurize at 60° - 65°C for 5 minutes.

10. Fill in sterilized bottle and seal tightly.
11. Label and store.

RICE WASHING VINEGAR

Materials Needed

4	cup	rice washings
¾	cup	sugar
¼	tsp	baker's yeast
1	cup	vinegar starter

Utensils Needed

measuring cup	casserole	cheesecloth
measuring spoon	stove	thermometer
		wide-mouthed glass jars

Packaging Material

sterilized bottles/jars

Procedure

1. Collect and measure the first, second, and third washings from rice.
2. Add ¾ cups sugar for every 4 cups rice washing.
3. Filter thru cheesecloth. Pasteurize at 60° - 65°C for 10 – 15 minutes.
4. Cool and add ¼ tsp yeast for every 4 cups of mixture.
5. Allow to ferment for 2 to 3 weeks in order to attain desired alcohol content. The rice washing with an initial sugar content of 15 percent produces about 8.60 percent by volume of alcohol.
6. Decant and/or filter thru cheesecloth to separate impurities.
7. To this alcoholic solution, add 1 cup vinegar starter for every 4 cups alcoholic solution to further convert alcohol to acetic acid solution.
8. Set aside for 18 days. A pale-yellowish vinegar is produced.

COCONUT WATER VINEGAR

Materials Needed

4	cup	coconut water
¾	cup	sugar
¼	tsp	baker's yeast
1	cup	vinegar starter

Utensils Needed

measuring cup	stove
measuring spoon	cheesecloth
glass jar (1-L cap.)	thermometer
casserole	wide-mouthed glass jars

Packaging Material

sterilized bottles/jars

Procedure

1. Strain freshly collected coconut water thru cheesecloth.
2. Dissolve ¾ cup sugar in 4 cups coconut water.
3. Pasteurize by heating at 65°C for 10 – 15 minutes.
4. Transfer in sterilized glass jars, half filled. Cool and add ¼ tsp Fleischmann's dry yeast.
5. Cover the container with a clean cheesecloth/paper.
6. Allow the sugar solution to ferment for 2 to 3 weeks or until there are no more bubbles of carbon dioxide formed. This is alcoholic fermentation.
7. Decant the alcoholic solution to remove the yeast and other solid materials. Pasteurize the alcoholic solution at 60° - 65°C and cool immediately.
8. To 4 cups alcoholic solution, add 1 cup vinegar starter. Cover with clean cloth/paper. This starts acetic acid fermentation.
9. Set aside for 1 month or until maximum sourness is obtained. For the development of desirable aroma and flavor, allow the vinegar to age in barrels or earthen jars which are filled to full capacity.

10. Filter the vinegar and then pasteurize at 60° - 65°C to kill the microorganisms before bottling the product. To clear the vinegar, stir it with well-beaten egg white and heat until egg white coagulates (optional). Filter vinegar.
11. Bottle, label and store.

PALM SAP VINEGAR

Sap from palm such as *nipa*, *buri*, coconut and *kaong* contain natural sugar in sufficient quantities for conversion into vinegar. As such, the pure sap is used and addition of sugar is not necessary. To make vinegar from palm sap, follow the same procedure as in producing vinegar from coconut water.

THE PREPARATION OF COCO VINEGAR STARTER (MOTHER VINEGAR) TEST TUBE CULTURE (*Acetobacter aceti*)

Materials Needed

4	cup	coconut water
¾	cup	sugar
¼	tsp	baker's yeast
1	cup	*aceto bacter*

Utensils Needed

measuring cup	casserole
measuring spoon	stove
glass jar (1-L cap.)	cheesecloth
	thermometer

Procedure

I. **ALCOHOLIC FERMENTATION**

1. Strain fresh coco water through cheesecloth.
2. Add ¾ cup (129 g) sugar to every 4 cups (1000 mL or 1 L) (10-15% sugar by weight).
3. Stir to dissolve the sugar.

4. Pasteurize (60°-65°C) for 10-15 minutes. DO NOT BOIL.
5. Cool and transfer into two (2) sterilized 1000-mL bottle half-filled.
6. Add ¼ tsp yeast. (In excess will result to a bitter taste).
7. Cover with paper or cheesecloth.
8. Ferment for 4-7 days.

II. **ACETIFICATION**

(1 test tube culture of *A. aceti*, 3-day old per 250 mL fermented coco water)

1. Decant the fermented coco water (do not shake/include the sediments) into two (2) another sterilized 1000-mL bottle (1L).
2. To the test tube (test tube ream previously flamed) add approximately 2 tsp (10 mL) sterile fermented coco water. Scrape the surface using an inoculating rod and dispense to the 1 cup (250 mL) fermented coco water. Add another 2 tsp (10 mL) fermented coco water, shake to get the remaining organism (*A. aceti*) and transfer the same to the batch asceptically in an inoculating chamber or a clean enclosed room.
3. After three (3) days, the implanted fermented coco water can be used as mother vinegar. Two (2) weeks should be the maximum fermentation period.
4. To reproduce mother vinegar, repeat items I. 1-8 (Alcoholic Fermentation) and mix this with an equal amount of 3-14 days old mother vinegar. Use this initially prepared mother vinegar for mass production.

Note: A 250-mL vinegar can be mixed with 1000 mL of alcoholic, fermented coco water for accelerated vinegar production.