

Chemistry experiment paper



**ASSIGN
BUSTER**

This project was done with the aid of a lot of people. I take this chance to express my gratitude to Mrs.

. Handmaid Bit. Mad for the guidance and motivation that contributed tremendously to this project. My thanks and appreciations go to my friends in developing this project too. TITLE Analysis of Vitamin C in fresh brand orange, pineapple and apple Juices. ABSTRACT Vitamin C plays an important role in our daily lives as a nutrition for our health.

Tropical brand pineapple Juice, Twister brand apple Juice and Twister orange Juice were used to determine for their concentration of Vitamin C contained.

The concentration of Vitamin C contained of these fruit Juices were identified by using titration. Based on the results, the concentration of Vitamin C contained in these 3 fruit Juices were obtained. The conclusion of the experiment is that different fruit juices contain different concentration of Vitamin C which is important in our daily lives.

Vitamin C is an essential nutrient in humans as it functions as a cofactor in several vital enzymatic reactions. (1) It is widely known that deficiency of Vitamin C would lead o scurvy in humans.

Vitamin C also has other beneficial effects to our body, such as preventing common cold/heart diseases and strengthening human immune system. (4) However, human beings cannot synthesis Vitamin C by themselves and should obtain it from other sources. The richest natural sources of Vitamin C are fruits and vegetables, for example, blackcurrant, blueberry, orange, lime, lemon, strawberry, cabbage and malt.

It is noted that Vitamin C can be chemically decomposed under certain conditions, such as heating and oxidation, many of which may occur during the cooking of food.) In general, the recommendation for vitamin C intake in humans is around 60-95 milligrams per day and the maximum upper intake level is 2000 milligrams per day. Vitamin C exhibits remarkably low acute toxicity. However, it is reported that a long-term overdose of this vitamin may cause diarrhea, iron overload disorders and kidney stone formation. (3) The chemical instability of vitamin C acid is due to the fact that it is a strong reducing agent and can be deactivated by a wide range of oxidizing agents.

For example, the oxidation of vitamin C by atmospheric oxygen in opened citrus juices slowly reduces the vitamin C concentration in these juices when the juices are stored in open containers.

(5) This experiment studies orange, pineapple and apple juices to different brands as sources of vitamin C. 1. 2 PROBLEM STATEMENTS Vitamin C content in commercial fruit juices may have been affected due to processing like pasteurization and heating during packaging. So labels on fruit juice packages may be misleading as the companies may underestimate the actual content.

Thus, the problem is that the consumers do not know the actual amount of vitamin C in the commercial fruit juice product.

The concentration of Vitamin C in preserved Tropical and Twister brand fruit juices affects the amount of iodine solution needed to titrate. 1. 3 OBJECTIVE To determine the vitamin C content in pineapple, apple and orange juice. 2 CHAPTER 2 2. 0 METHODOLOGY 2.

1 APPARATUS * 25.0 cm Pipette * 250 cm Conical flask * Burette * Retort stand * Pipette filter * Distilled water bottle * Filter funnel * White tile * 100 cm Beaker * 250 cm of volumetric flask

2. MATERIALS * Vitamin C standard solution * Potassium iodide * Iodine * Iodine solution

3 * Distilled water * Twister brand orange Juice * Twister brand apple Juice Tropical brand pineapple Juice * Starch indicator solution

2. 3 PROCEDURES

Preparing to starch indicator solution

1. Make a paste of leg of starch with cold water.
2. Pour boiling water and make up to 100 cm. Preparing of 0.005 mol dm⁻³ iodine solution
1. Weigh 2.56 g of potassium iodide into 100 cm beaker.
2. Weigh 0.5 g of iodine into the same beaker. . Add a little distilled water into the beaker and swirl until dissolved.
- 4.

Transfer the solution into to 250 cm volumetric flask and dilute it with distilled water until 250 cm mark.

5. Concentration of iodine solution may be calculated as follow:

Titration of Giant brand food Juices

1. Pipette a 25.0 cm of the sample solution into a 250 cm conical flask and add about 150 cm of distilled water and 1 cm of starch indicator solution.

2. Titrate the sample with 0.005 mol dm⁻³ iodine solution.

The endpoint of the titration is identified as the first permanent trace of a dark blue-black color due to the starch- iodine complex.

3. Repeat the titration with further of sample solution until you obtain accurate results.

It acts as an antioxidant (inhibits oxidation) in the body, helping to protect cells from the damage caused by free radicals. The body requires vitamin C in order to make collagen, a protein essential to help wounds heal. Vitamin C

also improves the absorption to iron from plant-based foods and helps the immune system work properly to protect the body from disease. The purpose of this practical investigation was to find out which Juice, orange, pineapple or grapefruit, contains the most Vitamin C, and to calculate the percentage of Vitamin C in each fruit Juice.

Vitamin C plays a crucial role in our lives by building and maintaining our tissues and fortifying our immune systems. Vitamin C should be included in a daily diet because it is water soluble, which means it is excreted from the body every day and cannot be stored for later use. Vitamin C can also be known as ascorbic acid and can be found in many food sources. Ascorbic Acids which are found in green peppers, citrus fruit, strawberries, tomatoes, broccoli, turnip and other greens, white and sweet potatoes, lentils, and a small amount can be found in fish and milk.

Humans should consume as much of this vitamin as necessary to assure a healthy immune system. The only side effect from taking too much Vitamin C is diarrhea, but it is very uncommon. A deficiency of this vitamin source is a disease known as Scurvy. Scurvy is rare among the United States, because of the many food sources available.

Scurvy is a disease among humans that causes the body to be weak.

Infected people have spongy and inflamed gums, loose teeth, swollen joints, and may be prone to Anemia, which is a deficiency in iron.

This disease is usually seen in sailors who have been months without fresh vegetables. We should consume at least 500-mg of Vitamin C per day to maintain a strong immune system which fights off diseases and

illnesses from the human body. It is also used to keep teeth and gums healthy, heal wounds, and strengthen muscles as well as blood vessels. In this experiment, apple Juice, pineapple Juice and orange juice are chosen to be determined the concentration of vitamin C in each Juice.

The mass of vitamin C per 250 cam (per serving) is calculated.

In Twister brand apple juice, there is 114 MGM of vitamin C In Tropical brand pineapple Juice, there is 110 MGM of vitamin C In Twister brand orange Juice, there is 516 MGM of vitamin C The result shows that the orange Juice has the highest vitamin C concentration as compared to the other two. As vitamin C is important to our body but it cannot be stored in our body, we have to consume at least 500 MGM -1000 MGM of vitamin C per day. Twister brand orange Juice is suitable for us to be consumed as it contains 576 MGM per serving or 250 cam.

Children need vitamin C to have good immunity and for Roth, however, orange Juice is a favorite drink to most of the children and Twister brand orange Juice is sold everywhere and are easily obtained. To further improve the investigation, fresh fruit Juices can be extracted from fresh fruits to compare it's vitamin C content with the commercial fruit Juice.

If fresh fruit juices are used, they must be filter to remove any residue that may affect the result of the experiment. From this experiment, we found that iodine solution can be used to determine the concentration of Vitamin C in fruit Juices.