IDENTIFICATION OF ASCORBIC ACID IN ORANGE AND PAPAYA AS SUPPORTING BODY METABOLISM PROCESSES

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ABSTRACT

Vitamins are organic molecules that are needed by the body for normal metabolism and growth processes. Vitamins are not carbohydrates, proteins or lipids. The body doesn't just synthesize vitamins. Vitamins based on their solubility in water, there are two, namely water-soluble vitamins (Vitamins B and C) and vitamins that are not soluble in water (Vitamins A, D, E and K). Vitamin C is the best antioxidant known to have benefits to boost immunity, vitamin C is usually found in vegetables and fruits. As an essential vitamin, vitamin C has an important function for the health of the body, the body requires 75 mg of vitamin C for women to 90 mg for men for daily needs. This study aims to determine the levels and content of vitamin C in Sunkist oranges and California papayas in increasing body resistance.

The method used in this research is an experimental method, namely descriptive qualitative research, with the sampling technique using purposive sampling method.

The results showed that the ascorbic acid identification test showed that Sunkist oranges and California papayas were both fruits that contained ascorbic acid or commonly known as Vitamin C.

Keywords: ascorbic acid, oranges, papaya, body metabolism.

INTRODUCTION

Vitamins are organic molecules that the body needs for normal metabolism and growth processes. Vitamins are not carbohydrates, proteins or lipids. The body cannot synthesize vitamins. Vitamins based on their solubility in water, there are two, namely water-soluble vitamins (vitamin B and vitamin C) and vitamins that are not soluble in water (vitamins A, D, E, and K). Because it is water soluble, vitamin C is easily absorbed in the small intestine, from where it passes directly into the portal venous blood to the liver and from there to the rest of the body. This vitamin is stored in many tissues, but especially in abundance in the organs associated with metabolic activity [14].

The chemical structure of vitamin C consists of a chain of 6 C atoms and its position is unstable (C6H8O6), because it easily reacts with O2 in the air to form dehydroascorbic acid. Ascorbic acid or better known as vitamin C is a vitamin for primates but is not a vitamin for other animals. Ascorbic acid is a strong reducing agent. Its oxidized form, dehydroascorbic acid, is easily reduced again by various reducing agents such as glutathione (GSH). The role of ascorbic acid as a coenzyme is uncertain because this acid cannot bind to any protein [13].

Vitamins are complex organic compounds essential for growth and other biological functions of living things. One of them is vitamin C. Ascorbic acid (Vitamin C) is a hexose and is classified

as a carbohydrate that is closely related to monosaccharides. Vitamin C is easily absorbed actively and possibly also by diffusion in the upper part of the small intestine and then enters the blood circulation through the portal vein. Average absorption is 90% for consumption between 20 and 120 mg daily. The body can store up to 1500 mg of vitamin C, when consumption reaches 100 mg a day. How to analyze vitamin C can be done chemically, biologically or microbiologically. The content of vitamin C varies widely between varieties, but ranges from 27-49 mg/100 g of fruit flesh. Orange juice contains 40-70 mg of vitamin C per 100 ml. Vitamin C has the molecular formula C6H8O6 with a molecular weight of 176.13 [13].

Vitamin C participates in many metabolic processes that take place in body tissues. Physiological functions that are known to require vitamins are:

1. The health of the connective tissue matrix substance.
2. Epithelial integrity through healthy intercellular adhesives.
3. The mechanism of immunity in the framework of the body's resistance to various diseases and toxins.
4. Epithelial health of blood vessels.
5. Decreased cholesterol levels.
6. Necessary for the growth of bones and teeth.

Sources of vitamin C are generally found in citrus fruits, green vegetables and tomatoes. These fruits are a good source of vitamin C. The body of living things every day requires vitamin C from 25 to 30 mg per day. Vitamin C can also be toxic if taken or taken in large or excessive doses, as vitamin C, a precursor of the catabolism of the so-called oxalic acid [6].

Examples of fruits that contain lots of vitamin C are pineapple and guava. Pineapple (Ananas comosus) contains vitamins (A and C), calcium, phosphorus, magnesium, iron, sodium, potassium, dextrose, sucrose (cane sugar), and the enzyme bromelain. Bromelain has anti-inflammatory properties, helps soften food in the stomach, interferes with the growth of cancer cells, inhibits platelet aggregation, and has fibrinolytic activity. The fiber content can facilitate bowel movements in people with constipation (constipation). The leaves contain calcium oxalate and pectic substances. Similar to bananas, pineapples also contain fiber which is useful for helping the digestive process, lowering cholesterol in the blood and reducing the risk of diabetes and heart disease. Fiber from 150 grams of pineapple is equivalent to half of an orange. In addition, the content of vitamins and minerals makes pineapple a good source of vitamin C and various other vitamins [8].

Guava fruit (Psidium guajava) is very rich in vitamin C and several types of minerals that are able to fend off various types of diseases and maintain body fitness. The leaves and bark contain anti-bacterial substances that can cure several types of diseases. In addition to vitamin C, guava also contains potassium and iron. Most of the vitamin C in guava is concentrated in the skin and outer flesh, which is soft and thick. So, guava is better consumed with the skin. The vitamin C content of guava is about 87 mg, twice that of a sweet orange (49 mg/100 g), five times that of an orange, and eight times that of a lemon (10.5 mg/100 g). Compared to water guava and guava, the levels of vitamin C in guava are much higher, which is 17 times that of water guava (5 mg/100 g) and four times that of guava bol (22 mg/100 g). Guava can be used as the main source for the body's vitamin C needs. Consumption of guava weighing 90 grams every day is able to meet the daily vitamin needs of adults, so as to maintain health and fitness [9].

One of the main functions of vitamin C is to prevent canker sores and bleeding gums, by the formation of collagen. Collagen is a protein that functions like glue, sticking together skin cells, bones and muscles, so cuts and fractures or blue bruises heal quickly. In men, the further impact of vitamin C deficiency is decreased fertility and an increased risk of gene damage in sperm that can cause birth defects. The main function of vitamin C as an antioxidant is to neutralize toxins and free radicals in the blood and body fluids. In this way, the role of vitamin C in preventing the oxidation of LDL cholesterol and preventing blockage of blood vessels so as not to cause hypertension and heart disease, also maintain lung health because it neutralizes free radicals that enter through the breath. [13].

Vitamin C also increases white blood cells that can fight infection so that colds heal faster, helps activate folic acid, increases iron absorption so as to prevent anemia, regenerates vitamin E so that it can be used again as an anti-oxidant. There are natural vitamins and some synthetic ones. as long as both are in the form of L-ascorbic acid and there is no difference in performance between the two [12].

Vitamin C is very easily destroyed by heating, because it is easily oxidized. It can also be lost in large quantities when chopping vegetables such as cabbage or mashing potatoes [2].

Vitamin C can be lost due to things like:

1. Heating, which causes damage/danger of structure
2. Washing vegetables after cutting them first
3. Presence of alkali or alkaline atmosphere during processing
4. Open a place containing vitamin C, because the air will happen irreversible oxidation. The addition of tomatoes or lime can reduce vitamin C levels kadar [10].

Besides being very soluble in water, vitamin C is easily oxidized and the process is accelerated by heat, light or oxidizing enzymes, as well as by institutional catalysts and iron. Oxidation will be inhibited if vitamin C is left in an acidic state or at low temperatures. Fruit that is still young (unripe) contains more vitamin C. The older the fruit, the less vitamin C it has [11].

In the long storage process, addition, inflammation and shrinkage will reduce the vitamin C content in foodstuffs, especially vegetables and fruits. The daily requirement of vitamin C in the body is approximately 60 mg. Sources of vitamin C are found in oranges, tomatoes, pineapple, papaya, cauliflower, spinach, papaya leaves and cassava leaves [2].

Iodine and iodine in vitamin C are used as indicators of vitamin C, play an important role in hydroxylysine proline and lysine into hydroxyproline and hydroxylysine which are collagen-forming ingredients. Vitamin C is a strong reducing agent and its determination can be determined by using a titration used is iodine based on the properties that determine it. The indicator used is starch with standardized iodine, which is 1 ml 0.01 N and iodine equivalent of 0.8 ascorbic acid [10].

The nutritional adequacy rate of vitamin C ranges from 60-90 mg/day. This RDA depends on the needs of a person's body and is also influenced by gender, weight, height, physical activity and stress, but not too far from 100 mg/day for vitamin C. Lack of vitamin C will cause canker sores or scurvy. Scurvy is usually rare in infants; when it occurs in children, usually at the age of 6 months and under 12 months. The symptoms of scurvy are the occurrence of softening of the collagen weave, infection, and fever.

There is also pain, tenderness, and swelling of the legs and thighs. In children whose teeth have come out, the gums are swollen, tender, and bleeding occurs. In adults, scurvy occurs after several months of suffering from a lack of vitamin C in the diet. The symptoms are swelling and bleeding of the gums, gingivalis, tender feet, anemia, and bone deformation. Acute canker sores can be cured in some time with the administration of 100 to 200 mg of vitamin C per day. If the disease is chronic, it takes longer time for healing and a more increased supply of vitamin C [13].

Determination of vitamin C levels can be determined through titration. The type of titration used is an iodimetric titration which is included in a redox titration that uses starch as an indicator. Actually this titration can be done without an indicator because the color of the iodine in the titration will disappear when the end point is reached. The color that occurs is dark brown becomes lighter, then yellow, light yellow, until the color completely disappears. However, to make it easier to add starch as an indicator. Starch can form a blue complex when it reacts with iodine [11].

Microwave cooking is the most effective way to retain water-soluble vitamins such as vitamin C because heat exposure is reduced and less water is used. But this can damage fat-soluble antioxidants. Vitamins B and C will be depleted if food is left warm for too long or too hot, always use a sharp knife, use a dull knife when cutting fresh vegetables can cause cell damage which eventually leads to loss of vitamin C [3].

Storing fruit, vegetables and salads in cold and dark conditions such as in the refrigerator or pantry is highly recommended, light and heat will damage vitamins B and C, storing fruit in a large bowl on the table is not recommended. Frozen fruits and vegetables often contain more nutrients than fresh ones. This is because the food is frozen immediately after harvest. Storage in the refrigerator should be:

1. Refrigerator is installed at 4°C or less. This temperature is sufficient to help slow down enzymatic processes and bacterial growth, but not too cold to affect food quality in the presence of ice crystals that form. It's a good idea to install a refrigerator thermometer to ensure the temperature is low enough for food safety.
2. Always cover food in the refrigerator. The air in the refrigerator is very dry, so food will easily dry out, lose quality, and become unappealing in no time.
3. The cold temperature of the refrigerator slows down the process of enzymes in food and also the reproduction of bacteria. This extends the quality, taste and texture of the food, and keeps the food safe for longer. It should be noted that the refrigerator does not kill bacteria and cannot improve the quality of food.
4. Do not fill the refrigerator too full. Make sure that there is always enough space between the foods to allow air to circulate freely between them. That way, the temperature will be more evenly distributed.
5. Use a refrigerator thermometer to check freshness and shelf temperatures. the coldest part of the refrigerator is not a place to store perishable foods like lettuce and soft fruit like papaya.
6. Foods that need to be refrigerated should be refrigerated for at least 2 hours after eating to prevent bacterial growth.
7. Clean the refrigerator every three weeks. Throw away vegetables, fruit, and food that can't be consumed [9].

Even though stored in the freezer, fruit that is treated with this storage, there is still a possibility of reduced levels of vitamin C due to vitamin C in it being

damaged This is due to the nature of vitamin C which is easily oxidized by either heat treatment or other treatments. Damage to vitamin C in this case can occur because vitamin C is oxidized by light or just before the pulp is put in the freezer, the pulp was stored at room temperature or even high temperature. Vitamin C is oxidized in solution by oxygen, by donating 2 electrons to the oxidizing compound. Vitamin C is very sensitive to heating, even mild heating (slightly above room temperature). Vitamin C is easily oxidized, especially if there is a catalyst of Fe, Cu, ascorbate oxidase enzyme, light, and high temperature. This Fe can enter the guava pulp during the pulping process using an old or unsterilized machine [1].

Levels of vitamin C, influenced by several factors, namely:

1. The state of the fruit: the more wilted / wrinkled or not the fresh vitamins cause the levels of vitamin C contained in the fruit to decrease,
2. Extraction time: the longer the extraction time the vitamin C content will decrease,
3. Storage period: the longer an ingredient is stored, the lower its content will be,
4. Temperature: the higher the temperature, the lower the level [6].

RESEARCH METHODS

In this study using the experimental method, in this study used the type of research that is descriptive. In this study, a qualitative laboratory test was used with the ascorbic acid identification test method in Sunkist oranges and California papayas. Qualitative research was conducted to determine the presence or absence of ascorbic acid or vitamin C in the identification test of Sunkist oranges and California papayas.

In this study, the sampling technique used was purposive sampling method. Purposive sampling method is a method that aims to determine the sample intentionally [4]. The samples used were Sunkist oranges and California papayas.

Tools and Materials

In this experiment using a mechanical balance, water bath, petri dish, burette, mortar pestle, pipette, stative and clamps, beaker, spatula, stirring rod, Erlenmeyer flask, funnel and measuring flask. The ingredients are 1% starch, 0.001 N iodine, aquades, and test samples (oranges, and papaya).

Work Procedures

1. Determination of vitamin C,
   a. Provide clean and dry tools,
   b. Label each tool,
   c. Then put the sample in the mortar and pestle to be pureed,
   d. After that, weigh the sample that has been mashed as much as 15 grams,
   e. Each slurry (material that has been mashed) is put into a 15 gram measuring flask that has been weighed,
   f. Add aquades to the specified mark then shake it,
   g. Filter the material to separate the filtrate,
   h. Take 15 mL of the filtrate with a pipette and put it in an Erlenmeyer flask and add 2 mL of 1% starch solution,
   i. Titrate the material with 0.001 N. iodine solution,
   j. After that, the titration was stopped after the color of the material changed to blue.

RESEARCH RESULT

After conducting several experiments, the following results were obtained: see the table below where the results of the ascorbic acid (Vitamin C) identification study showed that the Sunkist orange sample was positive for vitamin C because in the study the Sunkist orange sample underwent a color change marked by blue color, then the California papaya fruit

sample was also positive for vitamin C which was marked by a color change that was blue.

Table 1. Determination of vitamin C levels

Sample	The Resulting Color
Sunkist Oranges	Blue
California Papaya	Blue

DISCUSSION

Ascorbic acid (Vitamin C) is a hexose and is classified as a carbohydrate closely related to monosaccharides. Ascorbic acid is an amazing antioxidant that protects cells from extracellular stress, by increasing endothelial cell proliferation, stimulation of type IV collagen synthesis, degradation of LDL oxidation, inhibiting atherosclerosis and intracellular stress by maintaining -tocopherol levels in erythrocytes and neurons, and protecting hepatocytes from oxidative stress. due to exposure to allyl alcohol. The antioxidant properties come from the hydroxyl groups from C 2 and 3 numbers which donate H+ ions together with their electrons to various oxidant compounds such as free radicals with oxygen or nitrogen groups, peroxides and superoxides.

However, in the cytoplasm with a high concentration of Fe compounds, ascorbic acid can be pro-oxidant because of the redox reaction of Fe^{3+} to Fe2+ which triggers superoxide compounds and ultimately becomes free radicals with highly reactive hydroxyl groups.

Vasodilation/narrowing of blood vessels which is generally caused by decreased NO secretion by endothelial cells can also be reduced by ascorbic acid by increasing NO secretion by endothelial cells through the NO synthase pathway or guanylate cyclase, reducing nitrite to NO, and inhibiting LDL oxidation. scorbic acid also plays a very important role as a coenzyme and electron donor in dioxygenase enzymatic organic reactions such as hydroxylation of carnitine, EGF or mono- and is oxygenated in various neurotransmitters and the synthesis of peptide hormones, noradrenaline, cholesterol and amino acids demethylation of histones and amino acids. nucleic; oxidative dealkylation of DNA improves the quality of succinic acid, malic acid and glycerol 3-phosphate in mitochondria homeostasis proton-motive force deglycanation of proteoglycan compounds captures excess ROS to reduce oxidative stress. One of the most well-known functions of cofactors is that of prolyl and lysyl hydroxylase coupling the hydroxylation of hypoxia-inducible factor-1α and procollagen.

Because of its capacity as an antioxidant that reduces reactive oxygen species that can cause hypertension, ascorbic acid is often considered to reduce high blood pressure. A study showed that ascorbic acid can reduce the plasma ratio of C-reactive protein, 8-isoprostane, and malondialdehyde-modified LDL, although not always accompanied by a decrease in blood pressure.

Ascorbic acid is also used as anti-cancer therapy in certain types because of its properties that suppress the IL-18 cytokine and the hyaluronidase enzyme in the degradation of hyaluronic acid to prevent metastasis, stimulate collagen to isolate tumor cells in vivo, prevent the oncogenic effects of viruses and carcinogens. Ascorbic acid is known to be toxic to some types of cancer cells, but not to normal cells of the body. Clinical studies show that administration of high doses of vitamin C, either by injection or intake, can relieve pathogenic symptoms and prolong the life expectancy of patients with advanced cancers, such as RCC, bladder tumors, B cell lymphoma.

In this research to identify ascorbic acid, a vitamin C determination test was conducted. Vitamin C participates in many metabolic processes that take place in body tissues. Vitamin C is a

micronutrient that plays an important role in the human body. This powerful antioxidant is important for the production of collagen and carnitine, which contribute to boosting and maintaining immunity. Even vitamin C also acts as an antimicrobial agent that can fight various microorganisms that cause infection. Vitamin C is believed to be able to prevent and treat respiratory infections by enhancing various immune cell functions [5].

Benefits of Vitamin C Can Help Strengthen Body Endurance Vitamin C activates Natural Killer cells. This makes the immune system have extra protection from various diseases, including cancer. Vitamin C is powerful in forming antibodies that can boost immunity. So that someone who regularly fulfills the needs of vitamin C in his body will not be susceptible to disease.

Vitamin C is also effective in forming antibodies that increase immunity, so that someone who regularly meets the needs of vitamin C in his body is not susceptible to disease. Vitamin C has an important role in the formation of collagen, which is a protein that maintains skin elasticity and gives firmness to the skin. So, regular consumption of vitamin C can prevent skin wrinkles and slow down the aging process.

This vitamin can also protect DNA from photochemical reactions (photochemical) that causes discoloration of the skin and also inhibits the formation of melanin which causes dark skin. Antioxidant vitamin C can protect the skin from ultraviolet radiation. Therefore, indirectly vitamin C can help prevent the risk of skin cancer due to excessive solar radiation.

Vitamin C is needed by retinal cells to function properly. Retinal cells are part of the central nervous system. This vitamin also functions to defend receptors and brain cells from premature damage. Antioxidants from vitamin C is also important, because it can protect the brain from the effects of free radicals.

In addition to maintaining the immune system, vitamin C is also needed to repair and replace damaged tissue. This vitamin can increase the formation of scar tissue and ligaments, which helps speed up the wound healing process.

Adequate vitamin C content can help the body to burn 30 percent more fat when doing sports. Vitamin C also has the ability to lower fasting blood sugar (GDP) levels, so it can keep the body mass index at normal limits.

Antioxidants in vitamin C can inhibit the oxidation of bad cholesterol (LDL), which is the main enemy for the heart and blood vessels. Someone who does not like to take vitamin C has a 20 percent greater risk of heart disease. Giving vitamin C with a certain dose can actually help the process of "cleaning" plaque that causes blockage of blood vessels.

Vitamin C in the body of pregnant women will help the process of absorption of iron, which serves to carry oxygen throughout the body and the fetus. Iron is also important in the production of red blood cells.

Vitamin C is also beneficial for the formation of the fetal brain. This vitamin can also prevent significant disturbances in the growth and development of muscles, bones, skin, bones, connective tissue, and cartilage in the mother and fetus. The immune system of pregnant women will also be helped by vitamin C.

Vitamin C is an important nutrient that is useful for repairing body tissues, helping iron absorption, and maintaining healthy skin, blood vessels, and bones. Vitamin C deficiency has the potential to cause a variety of health problems, from frequent bleeding gums to heart disease.

Given that vitamin C (ascorbic acid) has many important functions for health, everyone is recommended to meet their

daily vitamin C needs. Adult men are recommended to consume approximately 90 mg of vitamin C per day. While adult women, about 75-85 mg per day. While in children to adolescents, the recommended intake of vitamin C is around 50-75 mg per day.

Impact of Vitamin C deficiency usually occurs due to an unhealthy diet (rarely eating fruits and vegetables), or due to impaired absorption of vitamin C in the body. The following are some conditions that can occur if the body lacks vitamin C:

1. Skin problems, the body needs vitamin C to produce collagen, which is a protein that forms the skin and connective tissue layers of the body.
2. Wounds are difficult to heal. In addition to maintaining healthy skin, collagen also plays an important role in the wound healing process. Therefore, a lack of vitamin C will make it more difficult for wounds to heal. In addition, a lack of vitamin C also makes wounds more susceptible to infection.
3. Easy bruising, lack of vitamin C can make blood vessels break easily due to a reduced amount of collagen. As a result, blood leaks into the surrounding area and causes bruising. Easy bruising is a common symptom due to a lack of vitamin C intake.
4. The body is easily tired, just like easy bruising, the body feels weak is also one of the symptoms of vitamin C deficiency. The reason is, vitamin C deficiency can interfere with the process of converting fat into energy in the body, and reduce the body's ability to absorb iron.
5. Gums bleed easily and teeth fall out, Vitamin C plays a role in maintaining healthy gums and teeth. Lack of vitamin C will make teeth prone to fall out and gums bleed easily. For people who already have dental and gum health problems before, disorders that occur in the mouth due to vitamin C deficiency can be more severe. In some cases, a lack of vitamin C makes the gums dark purple in color. Lack of vitamin C, which has antioxidant properties, can also make mood swings.
6. Weight gain, there are studies that show that low levels of vitamin C in the body can increase the formation of fat, especially in the stomach. As a result, the risk of obesity will increase.
7. Weak immune system, some studies have found that a lack of vitamin C intake can weaken the immune system. This condition makes a person more susceptible to infections, such as the flu and pneumonia.
8. Joint pain, Lack of vitamin C intake is believed to cause pain and swelling in the joints. Even in severe cases, this joint disorder can make it difficult for the sufferer to walk.
9. Scurvy, scurvy or scurvy is a condition that can occur when the body experiences a severe deficiency of vitamin C. This condition can be recognized by the appearance of symptoms in the form of a weak body, loss of appetite, nausea, diarrhea, and fever. If left untreated, scurvy has the potential to bring on dangerous diseases, such as heart disease. In the worst case scenario, untreated scurvy can lead to death.

In addition to some of the diseases above, vitamin C deficiency is also associated with an increased risk of cancer and aging-related eye disorders (macular degeneration). In order to avoid the various diseases above, try to frequently consume foods that are a source of vitamin C as part of a balanced nutritious diet. If necessary, you can also take vitamin C supplements. To determine the type of food and supplements that are

appropriate, you can consult further with a nutritionist.

Generally, vitamin C deficiency that occurs in adults is caused by an inadequate diet. That is, the body does not get vitamin C intake from food or supplements. As a result, you are deficient in vitamin C and experience a number of the aforementioned symptoms. In addition, the need for vitamin C per day will increase due to experiencing various diseases, such as:

1. Fever,
2. Diarrhea,
3. Iron deficiency, and
4. Lack of protein.

6. Nu

Although it is a rare vitamin deficiency problem, there are various groups at risk for vitamin C deficiency, namely:

1. Dependence on drugs or alcohol,
2. Follow a strict diet,
3. Have impaired nutrient absorption (malabsorption), such as Crohn's disease,
4. The elderly who have an unbalanced diet,
5. Smokers, as well as
6. Pregnant or breastfeeding women.

The main treatment for vitamin C deficiency is to replace the vitamin C that is lacking in your diet. This method can work by taking supplements and foods rich in vitamin C. You may also consult a nutritionist. At certain periods of time, vitamin C supplements can be discontinued as directed by a doctor.

Even so, keep in mind that getting a source of vitamin C from food is important when taking supplements is stopped. Thus, vitamin C deficiency can be treated properly and the symptoms experienced have subsided.

Taking too many vitamin C supplements can cause a person to excrete oxalate and uric acid compounds in their urine. These compounds can trigger the formation of kidney stones.

excess vitamin C in the diet is probably harmless. However, taking high doses of vitamin C supplements can cause some symptoms such as:

1. Digestive problems such as diarrhea, ulcers, and nausea,
2. Stomach Cramps,
3. Headache,
4. Insomnia,
5. Kidney stones,
6. Nutritional imbalance

Another concern about excessive intake of vitamin C is that it can interfere with the body's ability to process other nutrients. For example, vitamin C can lower levels of vitamin B12 and copper in the body. Excess vitamin C can also increase the absorption of iron in the body, which can cause levels to become too high.

In the study of ascorbic acid identification, we used 2 materials or samples, namely California papaya and sunkist oranges. This is done by carrying out various stages or processes where there are results from the experiments we did, namely the identification of ascorbic acid levels in papaya fruit after being titrated to produce a blue color, this indicates that papaya fruit contains vitamin C which is marked with color change, this is in accordance with what Hardjadi said in his research journal.

Then in the second sample, namely citrus fruits, the same thing is done, namely determining vitamin C levels and getting results, namely positive citrus fruits containing vitamin C, this is shown by a change in color when titrated by changing color to blue, this is in accordance with hardjadi's view in his research.

So it can be said that the two samples, namely citrus fruits and papaya were positive for vitamin C with a blue color change marked after the titration.

CONCLUSION

Based on the practicum carried out, it can be concluded that there are two samples used in testing the determination of vitamin C levels, namely citrus fruits and papaya by carrying out various stages and procedures, the result is a blue color change that occurs after the titration is carried out in which the changes indicate that the material or sample is positive for vitamin C.

It also cannot be separated from several factors that affect vitamin C levels, such as temperature, fruit condition, storage and others.

It is hoped that the next researcher can be more orderly and skilled in conducting research and for research assistants are expected to be able to supervise and guide practitioners so that they are not wrong in conducting experiments. And practitioners are expected to always use PPE (Personal Protective Equipment) when conducting research in order to avoid accidents if they occur.

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