

Identify Acid-Base with Extract Dragon Fruit And Turmeric

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Abstract

This study aims to determine the identification of acid-bases with natural indicators. This, is done because acid-base testing uses a lot of litmus paper. In dragon fruit extract and turmeric extract, there is a more concentrated color pigment content to determine the acid-base concentration. So we want to increase its sensitivity to detecting acid-bases. The method used in this study is experimental. The results of the study can be used to assist the public in knowing the benefits of dragon fruit and turmeric to detect acid-base solutions.

Keyword : Acid-base, Natural indicators, Turmeric extract, Dragon fruit extract

1. Introduction

Chemistry included branch knowledge that is not can understood only with read , will but For control the concepts contained within chemistry needed involvement student in a manner active Good in learning nor activity practicum in the laboratory .

Practice chemistry besides can practice student How use tool and the right materials, also helps understanding student to material chemistry taught in class curious students know high , through practice they obtain answer from want he asked in a manner real. Activities practice the need guide To use support its implementation . Acids and bases are two groups substance very common chemistry found around us. As For example, vinegar, acid citron, and sour in stomach belong sour, meanwhile chalk betel and caustic soda belong base. Acids and bases own different properties. In the beginning, acids and bases distinguished based on the taste, where sour feels sour whereas base feels bitter and slippery like soap. However, by general substances sour nor base characteristic corrosive and toxic esp in form solution with rate high so very dangerous If tested its nature with method feel it. Because that our group uses experiment with method mash and do wash try from some natural indicators.

And this time our group uses Indicator experience with using two ingredients that is turmeric and fruit dragon, because a number of reason. Turmeric, (*Curcuma longa* Linn. syn. *Curcuma domestica* Val.), is one plant spices and medicine original from the Southeast Asian region.

Turmeric often used as spice in Cook kind goulash and also used For give color yellow in cooking or as preservative. Product pharmacy made from turmeric capable compete with various patent medicine, for example For inflammation joints (arthritis-rheumatoid) or osteo arthritis diclofenac sodium active, piroxicam and phenyl blindson with price relatively expensive or supplement food in form capsule (Fuad, 2014)

Extract turmeric can used as detector borax Because contain compound curcumin. curcumin can detect exists content borax in food Because curcumin capable decipher bonds borax become sour borate and bind it become complex rose color or normal called with compound boronsiano curcumin complex. Borax characteristic base weak with a pH of 9.15-9.20. Whereas characteristic chemistry curcumin colored yellow or yellow orange on the atmosphere sour and colored red on the atmosphere base. Form crystal colored orange yellow, no late in ether and dissolved in oil. Then, when containing food borax dripped on paper turmeric, paper turmeric will experience change color become brick red (Aeni, 2017).

Based on description above, then need done study For know turmeric as indicator detector borax in noodles wet which is sold in Kelurahan Mojo Kecamatan Gubeng Surabaya. And the reason we took the fruit indicator dragon That Alone because. Fruit dragon or dragon fruit has content substance beneficial bioactives for body among them antioxidants (in sour ascorbate, beta-carotene, and anthocyanin), as well as contain fiber food in form pectin. Besides it, deep

fruit dragon contained some minerals like calcium, phosphorus, iron, and others. The vitamins contained in fruit dragon including vitamins B1, vitamin B2, vitamin B3, and vitamin C (Pratomo, 2008).

According to Kristanto (2003), *Hylocereus polyrhizus* or often called red pitaya (fruit dragon red) have rate more sweetness tall compared to fruit dragon white (*Hylocereus undatus*) is reach 13-150 Brix. Fruit dragon red This have own rate the same sweetness with fruit super red dragon (*Hylocereus costaricensis*), however own superiority alone Because flower plant fruit dragon red This always appear every moment so that production every the season always abundant (Indira, 2018). Fruit dragon red colored interesting, increasingly red the color the more Lots element beta-carotene (Markakis, 1982). Fruit fresh dragon is not can stored a long time, because own high water content is 90% and age store 7-10 days at 140°C, so needed processing advanced so need nutrition can maintained and extended Power durable. one processing fruit dragon that is made fruit juice drink. Fruit juice drink is drink lightly made of fruit juice and drinking water with or without added sugar and ingredients addition permitted food (SNI, 1995). Characteristics of fruit juice dragon red tend muddy, a lot solids dissolved, and a little sour. Problems that arise in fruit juice drinks dragon is emergence precipitate during storage. In making fruit juice drink murky needed material stabilizer For maintain condition turbid and prevent deposition . because it, deep study This added material stabilizer with objective for get recommended

fruit juice stability namely at least 50% (SNI, 1995).

2. Materials And Methods

Study conducted on December 14, 2022 at Wijaya Kusuma University, Surabaya. Study This use method experiment. Research conducted with approach scientific with using two sets of variables. First sets as control, that will used For measure difference from second set. Subject study This use extract turmeric and fruit dragon, which is used as material indicator experience solution acid-base.

Preparations made for do method experiment that is prepare equipment like pestle, mocktar, tube reaction and glass. Steps study This is First is (1) prepare material indicator natural, (2) sliced turmeric and fruit dragon into small pieces and mash in a mortar until smooth. (3) if ingredients Already fine then add alcohol, (4) then take extract it and filter it. Filtered extract can added solution such as (vinegar, water soap, water sugar, sauce cakes, etc.), (5) Extract already mixed with solution direct Can entered to in tube reaction. (6) And can look from a number of change color.

Data analysis conducted in research This use reference from other sources so do method experiment for test and prove the data.

3. Results and discussion

Table 1. Solution PH and properties universal indicator

Solution	universal pH indicator	Solution properties
Soap	9	Base
Vinegar for food 5%	2	Sour
Baking soda	8,3	Base

Table 2. Results from study

Sample name	Soap	Vinegar	Baking soda
Turmeric	Faded orange	Yellow	-
Fruit dragon	-	Brick red	Purple old

Soap and baking soda is characteristic solution base because the PH is more of 7, whereas vinegar eat is solution sour due to less PH of 7. Measurement This done with universal indicator .



Figure 1. Test results Extract Turmeric

From practicum in observation indicator sour the language we do can We look at the table on that turmeric and fruit dragon, got used as indicator naturally done to testing turmeric and fruit dragon. Because it can change color in solution soap, baking soda solution and tincture vinegar eat.



Figure 2. Test results Extract Dragon Fruit

In our group did research on extracts fruit dragon done with put 5 drops in each vials with 1 vial filled full between five bottles, then input solution soap, solution vinegar eat, and a solution of baking soda on 2 pieces vials as much as 5 drops as well. With change color in the mix extract fruit dragon with vinegar colored brick red, on mix extract fruit dragon with soap colored purple old.

So fruit dragon can made as indicator experience for know something it doesn't can felt with senses man is something substance the characteristic sour or base because substance the roar dangerous poison for human, fruit dragon is one from indicator experience sour base with method it works change color in aqueous solutions sour base. If one mixed solution with extract fruit dragon happen change color in a manner significant so something solution the can said sour nor base.

5. Conclusion

Based on analysis research that has We do can concluded that detect acid-base with using natural indicators more suggested with use material turmeric. this because in the extract

turmeric contain intense color so that more strong for detected acid-base.

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