STUDEN'S WORKSHEET

TEST FOOD SAMPLES CONTAINING ADDITIVES WITH NATURAL INDICATORS OF PURPLE TRUMPET FLOWER CROWNS

Class : VIII A

Group :

Member : 1.

2.

3.

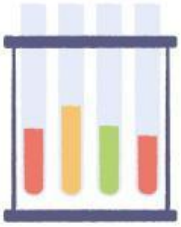
4.



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Learning objectives

1. . Students are able to decide and avoid dangerous additives food



charging instructions



1. Make groups which each group consist 4 students

2. Read and discuss with your group about the Students Worksheet that will be carried out

3. Follow the instructions provided on the Students Worksheet

4. Work with your group according to work procedures

5. Create data and analyze what has been done

6. Draw conclusions regarding the activities that have been carried out







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INTRODUCTIONS

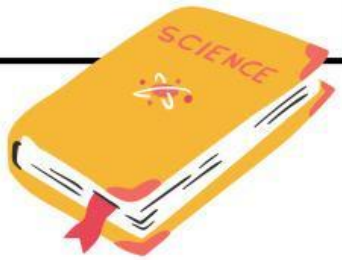


A) Read the following text carefully!

Street culinary is no longer foreign to our ears. Almost on every street corner there is someone selling various fast food or snacks. The menu offered must be delicious and striking, the aim is to tempt every motorbike passing through the road. Street culinary delights such as meatballs, chicken noodles, grilled sausages and various other types of food are popular with many people. However, there are still many of them who do not know the content or composition of these foods. It is not uncommon for many food sellers to add ingredients that should not be consumed.

Borax and Formalin are two names that are well known in the dark world of street food. Borax is usually used to preserve wood and clean, while formaldehyde is used as a preservative for corpses and is carcinogenic and can trigger cancer if consumed. Traders use formaldehyde as a preservative because it will make their merchandise last longer, besides this material is easy to obtain and easy to use, and the price of formaldehyde is relatively cheap compared to other preservatives. Even though it is profitable from the seller's perspective, from the consumer's perspective it can pose health risks to the body. Dangers of consuming food which contains a lot of borax and formaldehyde, one of which can damage the liver and kidneys and trigger cancer.

Purple trumpet flower (Ruellia tuberosa) is a flower that comes from Mexico, the Caribbean and South America. This flower contains anthocyanin pigment. This anthocyanin substance gives the purple trumpet flower its purple color.



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Research on purple trumpet flowers which contain anthocyanins can be used as an indicator test for borax and formalin additives, namely by using an acid-base indicator test which is characterized by a color change in the sample. If food is positive for containing borax, the color will change from purple to green because the Ph of borax is around 9-11. If food is positive for containing formaldehyde, the color will change to reddish brown because the Ph of formaldehyde is around 5-6. In order to test the borax and formaldehyde content in food, a food additive content test was carried out using the natural indicator test for purple trumpet flowers.

Formulation of the problem

What are the characteristics of the color change of each food sample containing borax and formalin after testing the additive using purple trumpet flower extract?

Hypothesis

Color of Food sample containing borax will change from initial color to green color and food sample containing formalin will change from initial color to faint black

Experimental Variables



Before your group conducts an experiment, first determine the variables in this experiment :

1. Variable Manipulation: The difference of sample food

2. Control Variable: Color of borax and formalin samples after mixed with flower extract and selection of purple trumpet flowers

3. Response Variable: Change in sample color after being mixed with flower extract

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Tools and materials





This section contains the tools and materials that will be needed when carrying out additive testing experiments using purple trumpet flower crown extract in tabular form

Tools :	Amount :
Mortar and Alu	2 Pieces
Drip Plate	1 Pieces
Drip Pipette	2 Pieces
Beaker	1 Pieces
toothpick	7 Pieces
Label	1 Pieces
Digital Balance	1 Pieces

Material :	Amount :
Formalin	3 Drops
Borax Solid	2 Grams
Wet Noodle Solution	3 Drops
Meatball Solution	3 Drops
Pempek Solution	3 Drops
crackers Solution	3 Drops
Salted Fish Solution	3 Drops
Purple Trumpet Flower Crown	Enough
Distilled Water	Enough

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Work Procedures



1. Prepare tools and materials
2. Grind the purple trumpet flower crown using a mortar and pestle and by adding distilled water until you get a purple trumpet flower extract solution
3. Transfer the purple trumpet flower extract to a beaker
4. Weigh 2 grams of Borax solids in a beaker with a digital balance
5. Add enough distilled water to mix and become a borax solution
6. Drop the borax sample with a dropper pipette, 6 drops into the drop plate
7. Drip the purple trumpet flower extract into the borax and formalin samples, 6 drops each, then stir with a toothpick to mix.
8. Grind each food sample using a mortar and pestle and add distilled water until it becomes a solution

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9. Drip each food sample using a dropper pipette with 6 drops each onto the drop plate
10. Drip purple trumpet flower extract into each food sample, 6 drops each, then stir with a toothpick to mix.
11. Observe the color changes that occur in each sample by comparing the formalin and borax samples as a control variable
12. Record and analyze experimental data in tables and draw conclusions regarding the experiments that have been carried out



Data and Analysis



After conducting experiments on additives to test food samples that contain borax and formalin, data collection and analysis will be carried out to find out whether the food samples contain formalin or borax:

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Data

Table 1. Color indicator experiments on food samples before and after being dripped with purple trumpet flower extract

SAMPLE	COLOR BEFORE	COLOR AFTER
Wet Noodle Solution		
Meatball Solution		
Pempek Solution		
Crackers Solution		
Salted Fish Solution		

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Analysis



Answer this question according to data experiment

1.What color borax and formalin before mixing with extract Purple Trumpet Flower Crown ?

The color of both borax and formalin are Milky White

2. Mention color of sample food before mixing with extract Purple Trumpet Flower Crown ?

Meatball color : Milky White
Pempek color : Creamer White
Wet Noodle color : Yellowish white
Crackers color : White
Salted fish color : Yellowish white

3. What color borax and formalin after mixing with extract Purple Trumpet Flower Crown ?

Borax color : Green
Formalin color : Clear Black / Light Black

4. Mention color of sample food after mixing with extract Purple Trumpet Flower Crown ?

Meatball color : deep purple
Pempek color : deep purple
Wet Noodle color : Light Black

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Crackers color : Light Black
Salted fish color : deep purple

5. Analyze and consider which food samples contain Borax and Formalin !

After doing the experiment, we consider and conclude that all sample food doesn't contain borax, but there are 2 sample positive contain formalin, there are Wet Noodle and Crackers.

It is strongly suspected that the food maker added formalin to preserve the food, so it would last a long time

conclusion

Make Conclusion after doing the experiment !

After we doing the experiment, we conclude that there are sample contain additive substance. fast food is most foods that contain additives, for example Wet noodle and crackers. coincidentally, in this experiment two sample were indicated to contain formalin.

Therefore, we must consume health food like consuming our own food such us making breakfast in home, and avoid fast food



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DOCUMENTATION



Figure 1. Tools and Material






Figure 2. Making extract purple terumpet Flower





Figure 3. Making Borax Solution

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Figure 4. Making Sample Food Solution



Figure 5. The Different Color of Borax and Formalin before and after drops the extract purple terumpet flower

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Figure 6. The sample food before mixing with extract purple terumpet flower



Figure 5. The sample food after mixing with extract purple terumpet flower

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