Lactic Acid Bacteria and Natto Bacilli

～Which lactic acid bacteria works the best with natto bacilli？～

1 Introduction

＜lactic acid bacteria＞

・intestinal function
・reinforcement of immunities for the body

＜natto bacilli＞

・intestinal function
・make our blood thinner

The amount of yogurts you have to eat per day is… 5kg!?

We want to take lactic acid bacteria efficiently.

Previous study by Dr.Hitohata…The number of lactic acid bacteria past by 10 times when introduced to natto bacilli.

×1

Which source of lactic acid bacteria reacts the best with natto bacilli？
Which will increase the most?

(a)

Bulgaria bacteria 2038 and Thermophilus bacteria 1131

(b)

Gasseribacteria SP and Bifidobaceria SP

(c)

Cremoris FC

※each yogurt does not have the same number of bacteria

◎My hypothesis is Bulgaria bacteria and Thermophilus bacteria will increase the most when mixed with natto bacilli.

Why? ;Symbiotic action between Bulgaria bacteria and Thermophilus bacteria

・they make each other increase even without natto bacilli, so with natto bacilli they could increase even more.

2 Experiment

＜Material＞ ・yogurt・・・(a),(b),(c) each 3g
・natto 9g（3g×3）

＜Process＞ ①make MRS medium
②dilute yogurt × 10^5
③mix natto 3g and distilled water 30g
④dilute natto water(③) × 10^7
⑤add only diluted yogurt on MRS medium
or
add diluted yogurt and natto water on it
⑥culture 37℃ for 3 days
⑦count colonies

This experiment was done three times with each yogurt

3 Result

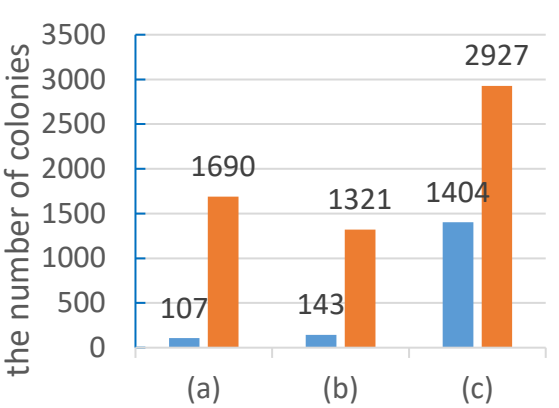


Fig1 the number of colonies
（average of three times）

Fig2 colonies（c only yogurt）

(a) about 16 times(p=0.0031)
(b) about 9 times(p=0.0354)
(c) about 2 times(p=0.0075)

all of the yogurts have a significant difference

(if p≦0.05,it has a significant difference)

4 Discussion

(a) Lactic acid bacteria especially increased when mixed with natto bacilli. The reason is that (a) can be affected by the symbiotic action between the two kinds of lactic acid bacteria, (Bulgaria bacteria and Thermophilus bacteria).

(b) has two kinds of lactic acid bacteria and increased drastically, second to (a).

(c) has only one kind of lactic acid bacteria and no great increase.

From the above, having two kinds of lactic acid bacteria seems to have a better relationship to natto bacilli.

5 Conclusion

・The combination Bulgaria bacteria and Thermophilus bacteria works the best with natto bacilli.

・Two kinds of lactic acid bacteria increased more than only one kind, when mixed with natto bacilli.

6 Future Study

To examine the percentage of increase of both Bulgaria bacteria and Thermophilus bacteria

References

・http://yogurt.hatenablog.com/entry/2015/07/06/%E3%83%A1%E3%82%B0%E3%83%9F%E3%83%AB%E3%82%AF_%E3%83%8A%E3%83%81%E3%83%A5%E3%83%AC%E6%81%B5%EF%BC%88%E3%82%AC%E3%82%BB%E3%83%AA%E8%8F%8CSP%E6%A0%AA%E3%83%BB%E3%83%93%E3%83%95%E3%82%A3%E3%82%BA%E3%82%B9
・https://zendamakinblog.com/product/meiji-bulgaria-yogurt
・「生活に身近な微生物の話(21)」 http://ounkai.la.coocan.jp/shuppan/natto.htm
・https://affiliate-free-illust.net/yogurt-free-illustration
・https://www.eatsmart.jp/do/caloriecheck/detail/param/foodCode/9900230000863
・「乳酸菌の数」 https://www.jst.go.jp/cpse/jissen/pdf/houkoku/SG150148_005.pdf#search=%27%E4%B9%B3%E9%85%B8%E8%8F%8C%E3%81%AE%E6%95%B0%27
・https://腸活hack.com/health/hiyorimi-kin/

Does lactic acid bacteria contained in yogurt continue to live ,when the yogurt is taken with blueberry?

Introduction

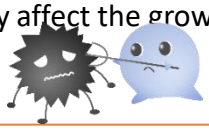
We want to easily eat more fruits such as blueberries by mixing them and yogurt together!!

But blueberry contains anthocyan

Preceding study : anthocyan has **antibacterial effects**

Does anthocyan really have an antibacterial effect?

Does anthocyan badly affect the growth of lactic acid bacteria?

Bacteria  Anthocyan

Hypothesis

1. Anthocyan has an antibacterial effect
2. More anthocyan activates the growth of lactic acid bacteria

Experiments



①<Materials>

- E coli
- Fruits containing anthocyan

（Raspberry . Grape skin . Blueberry）

<Procedure>

1. Make a LB medium
2. Soak fruit juice in the filter paper
3. Add the filter paper to LB medium
4. Cultivate at 37 ℃ for 3 days
5. Observe

②<Materials>

- E coli
- Blueberry (Boiled down for 5 to 15minutes)

<Procedure>

The same as method①

③<Materials>

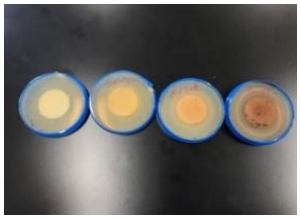
- Lactic acid bacteria(Bifidobacteria BB 536)
- Blueberry(2.2g/berry)

<Procedure>

1. Make an MRS medium
2. Dilute 5g of yogurt＆blueberry 10,000 times
3. Add the dilute solution on the MRS medium
4. Cultivate the solution at 37℃ for 3 days
5. Count the number of the colonies

Results

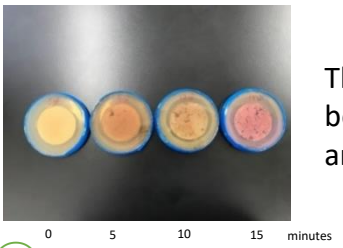
①



Grape skin and **Blueberry** →antibacterial effect

Raspberry , Filter papers →no antibacterial effect

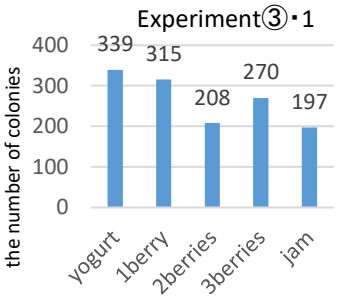
②

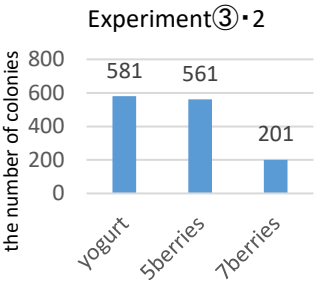


The longer blueberry is boiled, the **stronger** the antibacterial effect is

③ Experiment③・1→blueberry 1～3berries (2018.11/8,15,22)

Experiment③・2→blueberry 5～7berries (2018.11/29)





Blueberry 1,3～5berries → ✓

Blueberry 2,7berries, jam → ✘

Discussion

- Mixing yogurt and fruit with antibacterial effects activates the growth of lactic bacteria
- **The amount of fruit** is important

Future Study

- To investigate to what degree anthocyan has an antibacterial effect under acid condition
- To find out the way to increase the number of lactic bacteria

References

Effects of microwave heating and boiling (blanching) on fruit polyphenols and antioxidant activity

https://www.jstage.jst.go.jp/article/eiyogakuzashi/70/3/70_207/_pdf

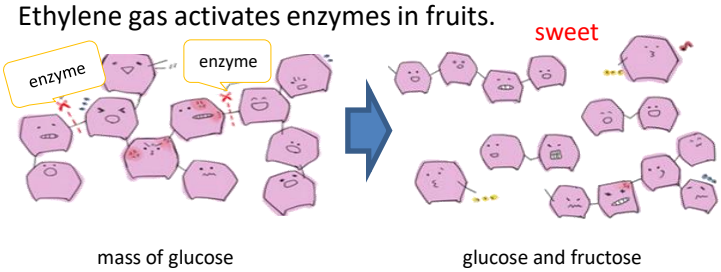
The latest version of the food dictionary that is good for nutrition

Make fruits sweet with the power of “light”!

1 Introduction

Ethylene gas promote the growth of plant.

Ethylene gas activates enzymes in fruits.



If fruits produce more Ethylene gas, we may be able to make them sweet more quickly！

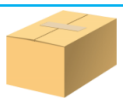
Ethylen,which is a kind of plant hormone and related to the growth of plants, may have something to do with the light.

Hypothesis is:
The growth of plants is related to the light and more ethylene gas is produced by hitting light.

The goal of my experiment

Check the amount of ethylene gas by hitting different colors of light and to identified what color helps produces more ethylene gas and makes fruits ripen sooner.

2 Experiment



Material：
- 5 cardboard boxes
- plastic bags
- LED lights (, , ,)
- plastic bags
- AA batteries
- Sugar content meter
- 5 apples
- 5 kiwi fruits

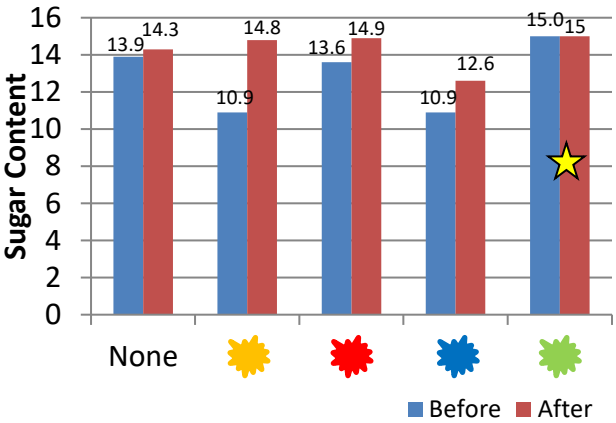
Experimental Methods:

1. Set LED lights on each cardboard
2. Measure sugar content of kiwi fruits
3. Put an apple and a kiwi in the same plastic bag and seal.
4. Put the plastic bag into the cardboard and turn on LED lights.
5. Five days later, measure the sugar content of kiwi again.

This experiment was done two times.

3 Results

Average of sugar content



☆Sugar Content increase

Most > > > None > Least

4.Consideration

☆The sugar content decreased when hit by pea green light.

→ Probably because the hole to measure the sugar content made the kiwi rot.

- Orange light increased ethylene the most
- Blue and red light also increased ethylene more than no light.

→A lot of ethylene gas was produced by the light and the growth of the plant is related to the light.

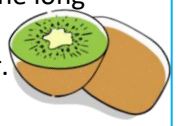
6 Future Study

Some kiwi fruits rotted because of the holes made to measure the sugar content.

→ Make holes smaller.

Some LED lights went out because of the long experiment time.

→ Make the experiment time shorter.



I couldn’t get enough accurate data.

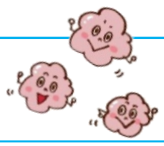
→ Repeat the experiments several times.

I didn’t check whether fruits other than kiwi fruit have the same result.

→ Conduct experiments with other fruits.

5.Conclusion

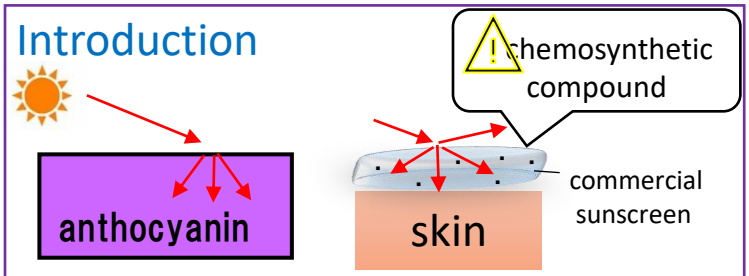
Orange light is helpful in order to make fruits sweeten more quickly.



Quote source
- http://flode-design.com/?p=692
- https://illust-navi.com/kiwi-fruit/

Using anthocyanin to make organic sunscreen

Introduction

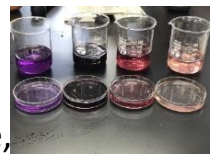


- sunscreen includes chemosynthetic compound
- anthocyanin absorbs UV
- anthocyanin is safe and stable ◎

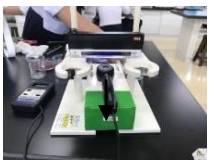
→can anthocyanin be used as a substitute for chemosynthetic compounds

Experiment

(1) Measure the absorbance of anthocyanin



Materials water, purple cabbage, blueberry (peel and fruit)



procedure ①boil and filter each material
②measure (5 times)

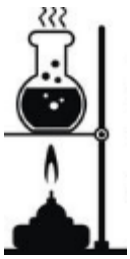
(2) Anthocyanin extraction

materials blueberry peel, water

procedure ①measure developing solvent
②boil and filter the material and extract anthocyanin by column chromatography

[method of separating and refining substances by using a cylindrical vessel]

(3) Make a sunscreen with anthocyanin



materials shea butter, olive oil, extraction liquid

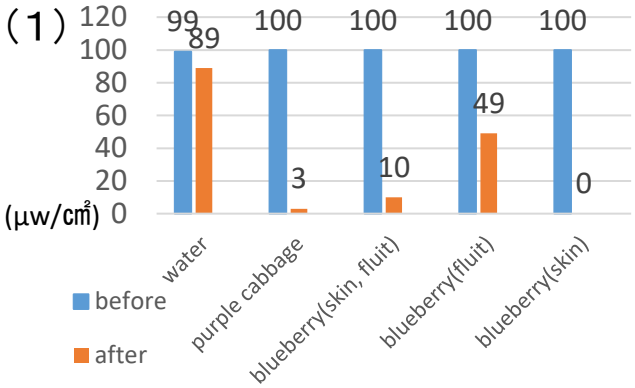
procedure mix with the materials while warming

References

https://www.sozai-library.com/wpcontent/uploads/2014/06/1810-450x337.jpg
www.jsitps2010.org/img/blueberry001.jpg
http://www2.tokai.or.jp/seed/seed/seibutsu16.htm
https://cdn.xl.thumbs.canstockphoto.com/canstock20767886.jpg

Results

(1)

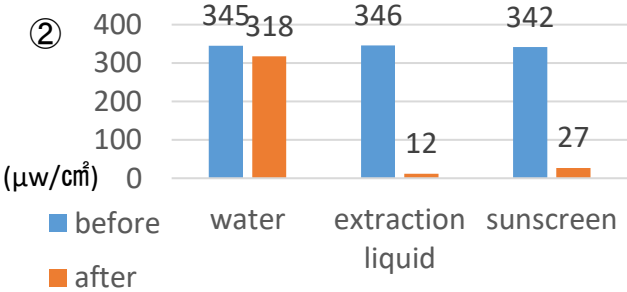


blueberry-peel had the most anthocyanin

(2) Anthocyanin extraction

① developing solvent ethanol : water = 7 : 3

②



an extract with the same effect as commercial sunscreen was created

(3) Make a sunscreen

- feels like clay
- almost no scent
- color is yellow
- separation of oil and water

Discussion

Due to the separation of oil and water, the effect is inconsistent .

⇒using emulsifier may improve its consistency and effectiveness

Conclusion

- Anthocyanin has an ultraviolet-blocking effect, which can be utilized.
- There is potential to create a sunscreen using the extract.

Future Study

- Change the material other than extract and remake sunscreen.
- Test new materials UV blocking.

Avoid Caffeine? ~Learning Ability of Slime Mold~

Introduction

What is Slime Mold

Slime mold is multinucleate organism
It lives on dead leaves and decayed tree

Classification

Ameba Kingdom
Ameba Phylum
Class Myxomycetes

Nature of slime mold:

- Memorize stimuli
- Keep memory when divided or combined (French research)

⬌ Learn and memorize presence of harm?

Hypothesis: Give caffeine repeatedly, slime mold learns and avoids the stimulus

➡ Develop slime mold computer
Continue research

Material and Method

Material:

- Slime Mold(Physarum Polycephalum)
- Petri Dish ・Agar Medium ・Maze(Plastic)
- Feed(Oatmeal) ・Sterile Room
- Thermostat Room ・Kitchen Towel
- caffeine(Estaron Mocha Tab)

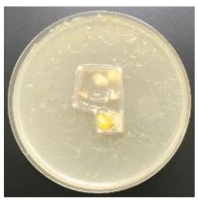
Method:

Place maze on agar medium
Place slime mold on start point
Place feed on goal point
Place kitchen towel impregnated with caffeine on shortest path
Place wet kitchen towel on another path (Figure 1)
Leave petri dish in thermostat room
Repeat them

Oatmeal

Estaron Mocha Tab

Figure 1



Results

1st ~3rd time

Reached finish avoiding caffeine (Figure 2)

Figure 2

4th ~8th time

Avoided caffeine at first
Few days later, some reached caffeine (Figure 3)

Figure 3

9th ~11th time

Some went shortest path with caffeine existence (Figure 4)
Others were same as 4th ~8th time

Figure 4

Conclusion

Some of slime molds considered to recognize caffeine as harmless by repeatedly touching it

Why differences in results:

- Caffeine did not block route completely
- Difference in caffeine concentration or humidity

Future study

- Increase accuracy in future experiments
- Increase the number of experiments
- Try more types of feed and stimulants

References

Obunsha Biological Encyclopedia
https://www.1101.com/nenkin/index.html
http://kazenotanikenkyuzyo.web.fc2.com/map.html
https://www.kagaku-kentei.jp/news_detail/data/351
http://news.livedoor.com/article/detail/4607424/

Where are ants Action Pheromones produced ?

1.Introduction

to Communicate with each other…

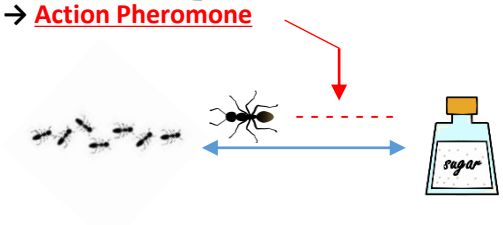
→ Ants use Chemical Pheromone

What are Pheromones ?

Liquid Chemicals produced and released by animals

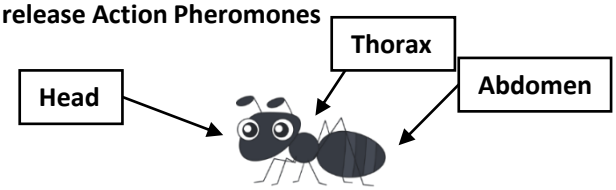
A Pheromone [to form a group / to be a mark of bait]

→ Action Pheromone



The Purpose of this study

・to find out which body part of an ant produces and release Action Pheromones



2.Procedure

1.Refrigerate 20 Japanese Wood Ant

2.Cut ants into 3 parts ; Head , Thorax and Abdomen

3.Put each part into 3 test tubes , and squash it after adding 1ml Ethanol to each tube

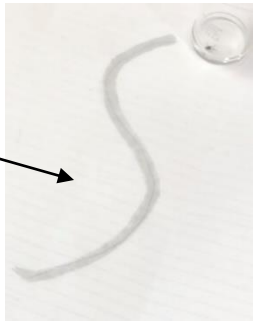
4.Filter each content 10 minutes later

5.Dip a brush in one kind of the liquid and draw on S-shaped line
As a reference , draw a similar line with a brush dipped in just Ethanol

6.Put a living ant (in the same colony) at the start point of each line and observe how it acts

Repeat the 5th and 6th steps 5 times

5.Liquid of ant's Abdomen

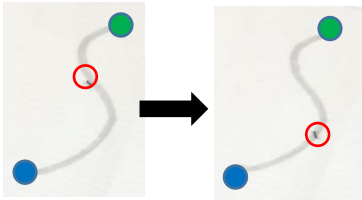


3.Results

Part＼Time	1	2	3	4	5
Head	○	△	×	△	×
Thorax	×	×	×	×	×
Abdomen	○	○	○	○	○
Ethanol	×	×	×	×	×

Ant followed a line of ants' Abdomens 5 times
Ant reacted to a line of ants' Heads to some extent (traced it only once)
Never followed a line of ants' Thoraxes or Ethanol

A line of ants' Abdomens
● : Start
● : Goal
○ : Position of the ant



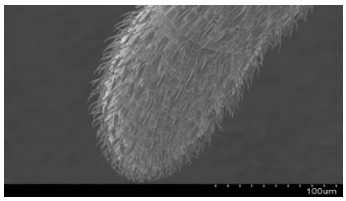
4.Discussion

The ant reacted to a line of ants' Abdomens without fail

→ An ant's Action Pheromone must be released from its Abdomens

Why the ant also reacted to a line of ants' Heads ?

↓Observed an ant's Antenna with an Electronic Microscope



The tip of an ant's Antenna (SEM)

An ant's Antenna has a lot of thick hairs

Ants detect Liquid Pheromones by touching them with the hairs of their Antennae

→ The Ant may have reacted to the Pheromones attached to the surface of the Antennae because I didn't wash ants before I cut them

5.Next Task

I want to research how long the effect of Action Pheromone lasts

References
www.jss.or.jp/fukyu/mentor/.../2014yamamoto_slide.pd...
www.tsukuba.ac.jp/community/kagakunome/.../jrhs1.pd...

Making A Crossroad Sign Using Sound Diffraction

1.Introduction

Diffraction:

・is a phenomenon that waves turn behind slits.
・becomes outstanding when the slit-width is less than the wave length. (Fig. 1)
Higher sounds have shorter wave length than lower sounds
→when the slit-width is same, higher sounds are not likely to diffract.
→when many low sounds and few high sounds are diffracted, we can make a change in sounds at the point where the high sound begins to be heard. (Fig. 2)

wave length>slit　wave length<slit

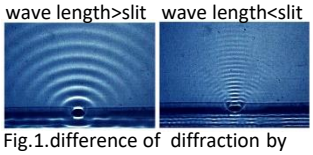


Fig.1.difference of diffraction by wave length

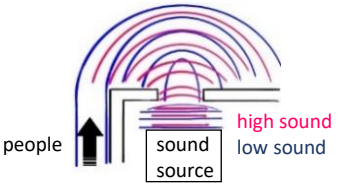


Fig 2.a change in sounds by frequency

Purpose

A change in sounds enables blind people to stop 70cm (stride length) before a crossroad.

Hypothesis

When the slit-width is less than the wave length of the high sound, many low sounds and few high sounds are diffracted. This makes a change in sounds and enables people to stop before a crossroad.

Preceding study（by Mr. Sakaguchi）

・measured the distance between a crossroad and the point that the **blindfold subjects** noticed the change in sounds.
・found that when the frequency of a sound is **higher than 2000Hz**, the change was easy to be noticed and that the sound was hardly affected by the noise at the crossroad.

This study

・used **a smartphone application** in order to get more accurate data.
・used sounds of **1174Hz** and **220Hz**, because they are comfortable.

2.Experiment Method

Procedure 1

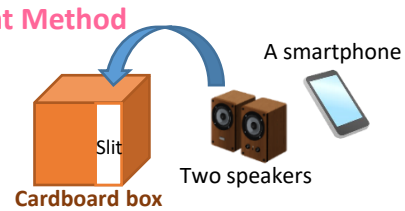
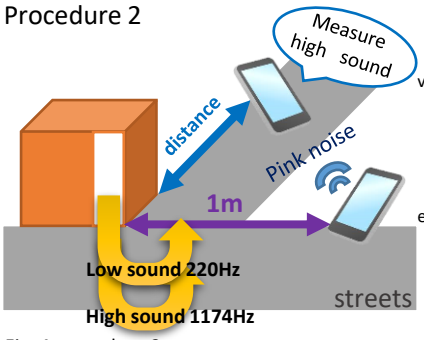


Fig. 3.procedure 1

・put a smartphone and two speakers into the cardboard box with a slit.
・wrapped the box except the slit, with several blankets in order to prevent sounds from spreading.

Procedure 2



$v=f\lambda$
v[m/s]:the speed wave spread (sound speed)
※used 340m/s
f[Hz]:frequency
λ[m]:wave length
ex.）when the frequency is 220Hz
$\lambda_1=v/f_1=1.54(m)$
when the frequency is 1174Hz
$\lambda_2=v/f_2=0.29(m)$

Fig. 4.procedure 2

・put the box at a crossroad corner.
・sent out the high sound with the smartphone and low sound with the speakers in the box.
・sent out pink noise, a kind of noise, with the smartphone, which was put one meter away from the box, in order to consider real noise at a crossroad.
・walked toward the crossroad with a smartphone and measured the distance between the crossroad and the point where the high sound appeared on the application (Fig. 5).
・repeated this ten times changing the slit-width each time.

3.Results

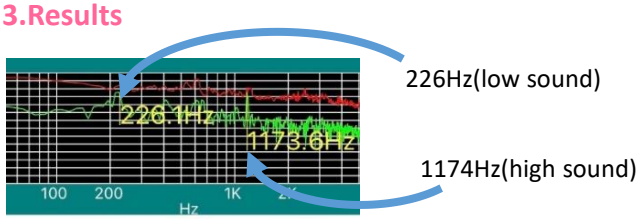


Fig. 5.the screen of the application (FFT Wave) at the point where 1174Hz was measured constantly

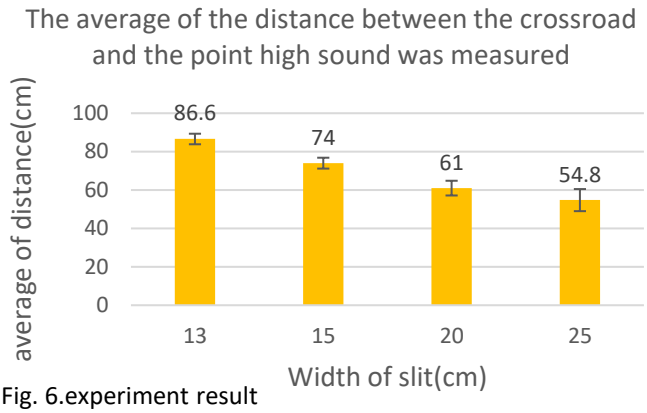


Fig. 6.experiment result

4.Discussion

・The sound of 1174Hz was hardly diffracted when the slit-width was longer than 29cm, (the wave length of 1174Hz).
→we examined a slit-width of less than 29cm in order to measure the high sound before the crossroad.
・When the slit-width was 15cm, the distance that we measured was closest to stride length.
→**15cm** was the best slit-width

5.Conclusion

15cm is a little shorter than the wave length of the high sound, 29cm.
→Our hypothesis was proved right

6.Future assignment

Consideration:

hurdles　walking speed　volume of noise

7.References

「Otonokaisetsuworiyositasainnonnnokento」
Sakaguchi Hiroki　Saito Tetsuma　Tsuchida Yoshiro
http://www.i-berry.ne.jp/~nakamura/contents/slit_wave_length/slit_wave_length.htm
http://sozaishu.up.seesaa.net/image/43620E382B9E3839EE383BCE38388E38395E382A9E383B3EFBC8FSmart20phone.gif
https://economoto.org/illust/2927/
https://1.bp.blogspot.com/-ixx0KsdMNSk/U3v3KzSCirI/AAAAAAAAgpE/-NnMHV4syoc/s800/tree_seichou07.png
https://4.bp.blogspot.com/-vOwPLozE1eo/V5jHiG1EuwI/AAAAAAAA80g/4JxL0zU2EN4mpavZ9QCtLS_IZ8siEJ8yACLcB/s800/walking2_man.png

Let's Find the Most Comfortable Clothes !

～changes in temperature caused by color and material～

【1.Introduction】

・summer is too hot, winter is too cold in Japan
・the climate in Japan is said to be extreme
・wearing different clothes is one way to protect ourselves from heat and cold

➡ What kind of clothes are the most suitable for each season?

★ focus on the color and the material of clothes

【2.Method】

Experiment1 Difference by color

1.Prepare plastic bottles colored seven different colors (Black,Blue,Purple,Green,Red,Yellow,White)
2.Put water in them
3.Warm them up by solar power
4.Measure the temperature

Experiment2 Difference by material

[1] Cooling down

1.Cover plastic bottles with three kinds of cloth
①Cotton100% ②Polyester100%
③Hemp25%,Cotton75%
2.Cool them in a freezer
3.Measure the temperature
(5～30min./every 5min.)

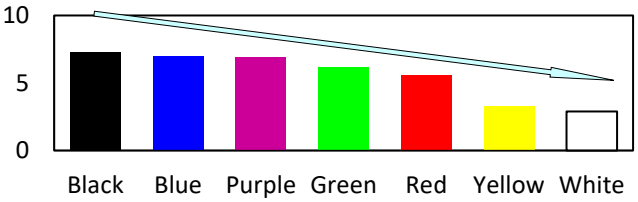
[2] Warming up

1.Cover plastic bottles with three kinds of cloth
①Cotton100% ②Polyester100%
③Hemp25%,Cotton75%
2.Warm them up with a hair dryer
3.Measure the temperature

【3.Result】

Experiment1 Difference by color

(℃) Increase in the temperature of each color

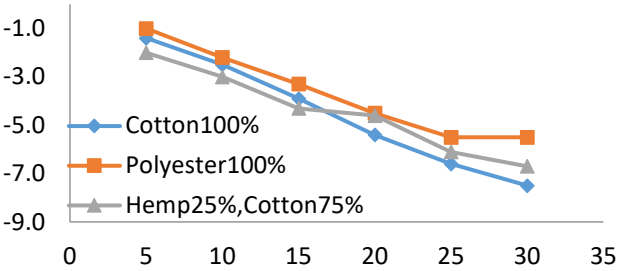


As the color becomes lighter, the temperature becomes lower

Experiment2 Difference by material

[1] Cooling down

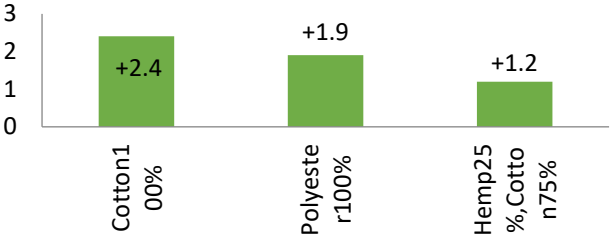
(℃) Decrease in the temperature of each material



In order of easiness to cool down
①Cotton ②Hemp ③Polyester

[2] Warming up

(℃) Increase in the temperature of each material



In order of easiness to warm up
①Cotton ②Polyester ③Hemp

【4.Discussion】

➢What causes such differences in the temperature of these materials?
→Observe the fiber of each material
➢How will the result change with other materials?
→Conduct an experiment with more materials

【5.Conclusion】

Summer : Hemp , Light color like White
→Prevent hot air outside from coming into clothes
Winter : Polyester , Dark color like Black
→Keep our body temperature inside our clothes

Eat Our Hair

～Dissolve our hair with strong acid or strong base and Extract amino acid～

1. Introduction

One person's growth of hair

1 month → 1 cm = 8 g

1 year → 12 cm = 100 g

All over the world

1 year → 100 g × 7 billion = 700 billion g

(world population)

It could be a new resource

Now all of them are thrown away

(Purpose)

Population explosion → Depletion of natural resources and foods → Need new foods

I hope we can eat our hair

Hypothesis

Strong acid solution can dissolve hair, and amino acids, appear in this solution

2. Experiment

Experiment 1. Dissolve hair

- Soak hair in solution of strong acid or strong base for a week
- Use solutions which dissolve hair in experiment 2, 3 and 4

Experiment 2. Confirm existence of amino acid

- Check for amino acid with solution of ninhydrin

Experiment 3. Separate noxious elements such as lead, mercury, cadmium

① Add hydrogen sulfide to solution which dissolves hair

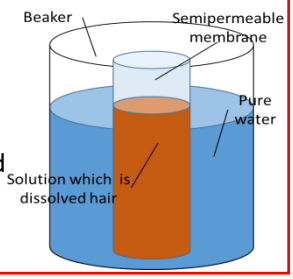
② Add solution① to NaOHaq

③ Filter produced sediment

Experiment 4. Experiment of dialysis

① Make a device like the one shown in the picture, and leave it for a week

② Check for existence of amino acid both inside and outside semipermeable membrane.



3. Results

Experiment 1. Dissolve hair

table1

Solution (1mol/L,50ml)	Result
Hydrochloric acid	Not dissolved
Sulfuric acid	Not dissolved
Nitric acid	Not dissolved
Sodium hydroxide	Dissolved
Potassium hydroxide	Dissolved
Calcium hydroxide	Not dissolved

Dissolve hair with NaOH(left) and KOH(right) solution and remove melanin

Experiment 2. Confirm the existence of amino acid

- Both NaOH and KOH solution contains amino acid is found

Experiment 3. Separate noxious elements

- No sediments is produced

Experiment 4. experiment of dialyze

- Amino acid exists inside, but not outside

4. Discussion

- **Hydroxide ion** can cut peptide bonds
- No precipitation action happened in experiment 3 because **there were little noxious substance**
- Amino acid existed in semipermeable membrane because **peptide bonds weren't cut perfectly, amino acid didn't pass semipermeable membrane**

5. Conclusion

Basic solutions can dissolve hair. **Amino acid and protein, whose bond isn't cut perfectly,** exist in the solution which dissolved hair

6. Future Study

- Research how much amino acid the solution contains
- Prove noxious substance isn't included
- Do experiments with many different types of hair
- Eliminate a horrible smell of the solution
- Make it delicious

7.References

- Chemical material book from jikkyou publish company
- https://ameblo.jp/rik01194/entry-12015490641.html
- https://www.newsweekjapan.jp/glenn/2018/07/2055100.php

To Promote Paper Products Recycling

Introduction

- In Kariya City, it is possible to get collected "Burnable trash", "Plastic trash", and "paper".
- But, we found the fact that it is less often to see the trash bags for "paper" compared with them for "Burnable trash" and "Plastic trash".

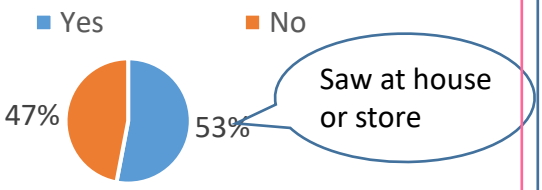
Paper products → Collect as "paper" → Be recycled

Paper products → Collect as "burnable trash" → Be burned up (Be not recycled)

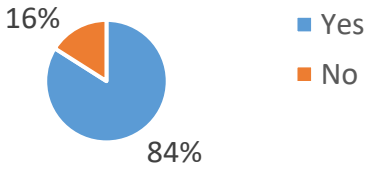
We want to recycle more paper products !

Research（By Questionnaire）

①Do you know the trash bag for paper products?



② For people who answered "yes" in ①
Have you ever used them?



Many people don't know its advantage, how to use, and where they are sold.

Research（At Store）

Trash bags for paper products were sold at

seven of eight stores

near Kariya High School.

Results

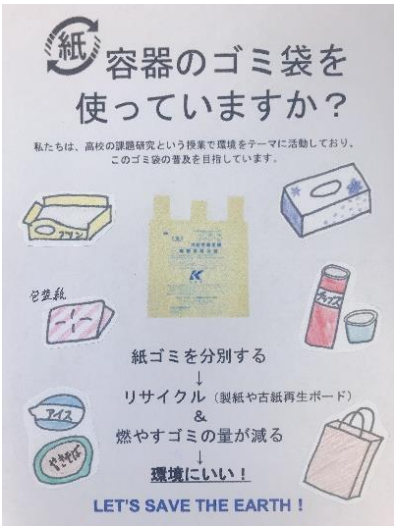
- ◆ About half people don't know this trash bag.
- ◆ Advantages and right way to separate trash haven't been conveyed .
- ◆ Though almost 90% stores sell them, many people don't know well where they are sold.

Discussion

In order to get to know about trash bags for paper, we have to tell the existence of them to all people living in Kariya.

Experiment

We circulated the leaflets (circular bulletin) for two areas of Kariya City.
Leaflets urge people to use this trash bag and to recycle.



Result

The amount of collected paper products increased!
December ➡ 3boxes
January ➡ 4boxes

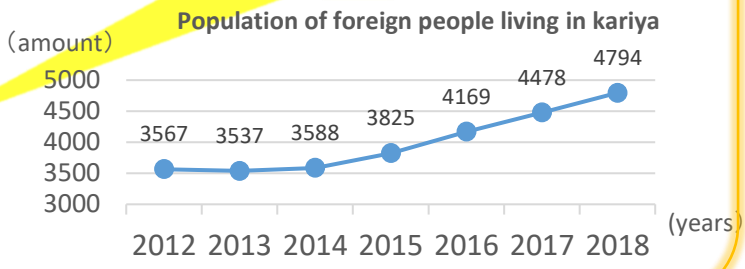
The Importance of International Understanding

Introduce

- Japan is largely a single ethnic state different from Australia.
- There are a lot of big companies in Kariya city.
- the number of workers from foreign countries is increasing.

➢ We need to make Kariya city comfortable for both of Japanese and foreign people.

However… Internationalization is not seen important.
Foreign people can't get useful information.



Method

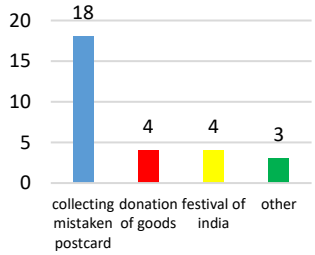
① **Conducting survey efforts Kariya City do:**
- Interviewed the International Association
- made a questionnaire

② **Knowing what foreigner are worried about:**
- Interviewed the Life Safety Department

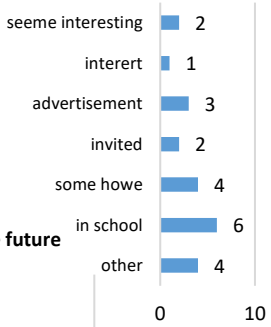
Results

① ・International exchange festival
・World Kitchen
・Japanese class

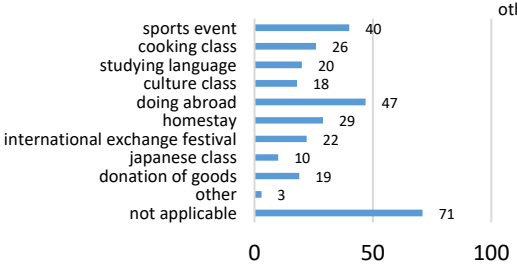
1. Volunteers which have joined



2. Motivation for participation



3. Would like participate in the future



② ・Not be allowed move into apartments .
・Don't know how to write documents for their work.
・Can't get used to living and understand Japanese.
・Don' know how to get marry or divorce in Japan.
・Don't know regional rule（ex : Dumping）
・Don't know the way they use hospitals.

➡ They make communities in areas such as housing among people who speak the same language……※1

・The interest in participation was low.

・Many people join campaigns such as collecting mistaken postcards because they can participate easily.

・People are interested in sports events.

Discussion

◎ **Main cause of foreign people worrying:**
Language barrier and prejudice from Japanese people

➡ Japanese and foreigners have to understand cultures of each other through exchanging events.

◎ **Holding international exchanging sports events at school or kindergarten**

⬇

Japanese can be interested in foreign cultures and international understanding can be promoted.

And…
If we invite community ＊1, more foreigners will come.

<Example>
Place : Kariya High School
Object : Local people and foreign residents
Content : Playing soccer and street hockey
Other : Experience of traditional cultures

Future Study

Now: no enough events which satisfy the needs of foreigners and Japanese

Subject: continue having international exchange events everyone interested in

⇒realize international symbiosis in Kariya City

References

the number of foreign residents in Kariya City
https://www.city.kariya.lg.jp/shisei/tokei/jinkonoshiryo/gaikokujin.html

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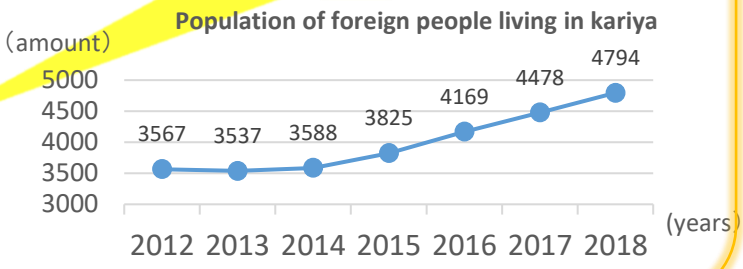

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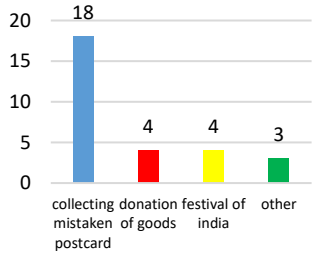

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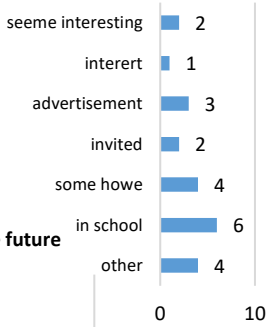

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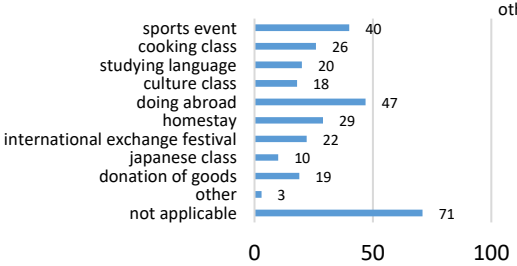

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https://www.sasebonichigo.com/en/