### Making lip balm without using chemicals Oikawa Sachi, Umemori Chio 市立札幌旭丘高等学校 数理データサイエンス科



### **Reasons for selecting**

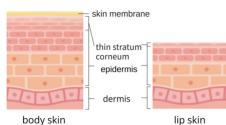
Cosmetics containing UV protective chemicals

We focused on lip balm

UV= ultraviolet rays

#### It flows into the ocean and bleached coral

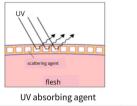
OWhat is required of a lip balm  $\rightarrow$  preventing drving of skin and moisturizina



Natural products are safer than artificial products

UV absorbing agent ... Butyl Methoxydibenzoylmethane UV scattering agent...zinc oxide, titanium oxide ,iron oxide

Creating lip balm using natural products.





	Butyl Methoxydibenzoylmethane	zinc oxide	titanium oxide	iron oxide
nt a person can consume(less)	16mg/kg	268.4mg/kg	1gm/m³	about45mg

body effect (topic

amoun

### Carrier oil

☆Raspberry seed oil Carrier oil Extracted from red raspberry Raspberry seed oil seeds Wheat germ oil -Contains vitamin E and tocopherol Watermelon seed oil Purpose : Olive oil create a lip balm using raspberry Carrot oil seed oil



SPF

28

15

10

7.549

### <Tools>

- Ultraviolet light (UV-B)
- Beads that glow when hit with UV light

How to make lip balm

- <Materials: Materials used as ingredients
- to block ultraviolet>
- Iron oxide
- Raspberry seed oil
- <Materials: Basics of lip balm>
- Beeswax
- Shea butter

## **Experimental results**



hit by ultraviolet











Raspberry oil only



Lip balm made Boil in hot water at On a hot plate 40 degrees

(SPF20)

induc	0.	mp	built	
			(SPF26	5)

		number of color 🔺	
1	Beads when nothing is hit by ultraviolet	1	
2	Lip balm made with iron oxide(Boil in hot water at 40 degrees)	2	
3	Lip balm made with raspberry oil	3	
4	Ready-made UV lip balm(SPF26)	3	
5	Ready-made UV lip balm(SPF20)	4	
6	Beads when hit with ultraviolet	5	
7	Raspberry oil only	5	
8	Lip balm made with iron oxide(On a hot plate)	5 <sup>123756</sup>	78

 Raspberry oil only does not completely block UVB. • The lip balm made with iron oxide was a deep , dark red

color, and because it was colored, it blocked out a lot of UV rays.

·With ready-made lip balms, the higher the SPF value, the more UVB is blocked.

### Summary

Raspberry oil is

1. The color changed when UVB light was applied to the ultraviolet beads using only raspberry oil.

2. It is difficult to judge the color with beads.

Based on these results, it cannot be said with certainty that it exhibits a sufficient effect of blocking ultraviolet ravs.

### Considera<sup>•</sup>

other materials caused results

- good for care
- less carotenoid

# Future prospects • Freshly extracted raspberry seed oil

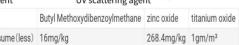
· Compare oils extracted from other carotenoid pigmented substances



Merck KGaA「安全データシート」

stics of raspberry (Rubus idaeus L.) seed oil

- In vitro sun protection factor determination of herbal oils used in cosmetics Vegetable oils as bioactive adjuvants for



UV scattering agent

can consume (less)	16mg/kg	268.4mg/kg	1gm/m <sup>3</sup>	about
cal)	a few dermal irritations	no	no	no