

UV prevention effect in purple cabbage?!

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Introduction

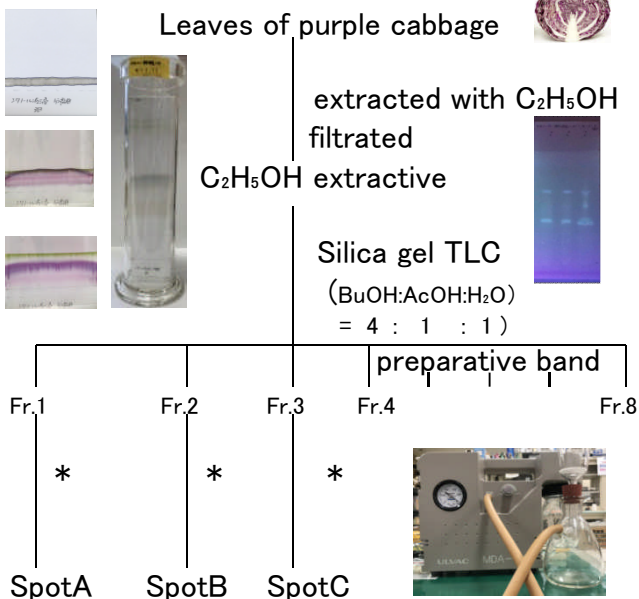
When we are exposed to ultraviolet rays our genes can become damaged. This can cause cancer. I have a question why doesn't purple cabbage get sunburn without putting sunscreen on. This time I researched purple cabbage about UV absorbed products.

Discussion

- Silica gel TLC separated 8 fractions.
- Participate Spot A, B and C are more brightly of the others.
- Leaves of purple cabbage have objects absorb UV rays.
- UV absorbed and give off visible ray

Methods

Leaves of purple cabbage



extracted with C_2H_5OH
filtrated
 C_2H_5OH extractive
Silica gel TLC
($BuOH:AcOH:H_2O$
= 4 : 1 : 1)

Fr.1 Fr.2 Fr.3 Fr.4 Fr.8
* * *
SpotA SpotB SpotC

Fig.1 filtration vacuum

each preparative & filtrate in vacuum by glass filter

C_2H_5OH : Ethanol
 $BuOH$: Butanol C_4H_9OH
 $AcOH$: Acetic acid CH_3COOH

Result

Preparative TLC of C_2H_5OH extractive of purple cabbage.

Plate :

Slicagel 60 Å 10cm × 20cm
(Whatman)

Solvent system :

$BuOH : AcOH : H_2O$
= 4 : 1 : 1

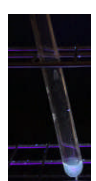

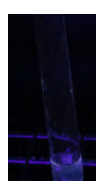
Detection : UV 365 nm

← Spot C

← Spot B

← Spot A

Fig2. This shows fluorescence when UV lamp was applied after drying TLC C_2H_5OH extractive

Spot	Rf value	Brightly	
A	0.13	The most	
UV absorbed and give off visible ray when UV lamp applied.			
B	0.19	Second	
This also absorbed UV lamp because of showed fluorescence .			
C	0.21	Darkest	
UV lamp a little absorbed because of showed dark fluorescence.			

Next Step

Leaves of purple cabbage UV absorb effect continue how time keeping under the sun. Each of pigment will expose to sunscreen how much fade observation.

Reference

Ryouko Osawa, Kazutami Kuwano, Kyouko Sekiyama, Akio Tukui, Tosio Mitamura, 東京家政学院大学紀要16, 31-35, 1976-10-03, 赤キャベツのアントシアニン色素について