W202006-3

Research study about Astringency of Unripe Bananas

Okayama Prefectural Kurashiki Amaki Senior High School

Introduction

Unripe Bananas

We feel astringency

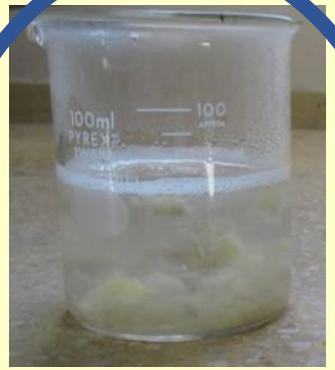
Cause
: Water Soluble Tannin

Simple Method to Measure Tannin

Experiment1

Green banana

Crush



Put the crushed bananas into solvent

heating

Measure

Result 1

①Crushing ways

No relationship

crushing ways	pestle	pure	pestle and pure
absorbance	0.043	0.023	0.03

crushing ways and absorbance

② Solvent

Diluted sulfuric acid

solvent	water	diluted sulfric acid
absorbance	0.018	0.11

Solvent (diluted sulfuric acid and water) and absorbance

③ Heating time

No relationship

heating time (min)	5	10	15	20	25
absorbance	0.07	0.07	0.08	0.08	0.065

Heating time and absorbance

④ Stirring

Need stirring

stirring	stirring	no
absorbance	0.24	0.043

Stirring and absorbance

Experiment2

① Crushing ways : No relationship ➡ Mixer

② Solvent : Ethanol

③ Heating Time : No relationship ➡ 30 minutes × 3

④ Stirring : Needed

➡ Comparison between untreated bananas and bananas treated with ethanol

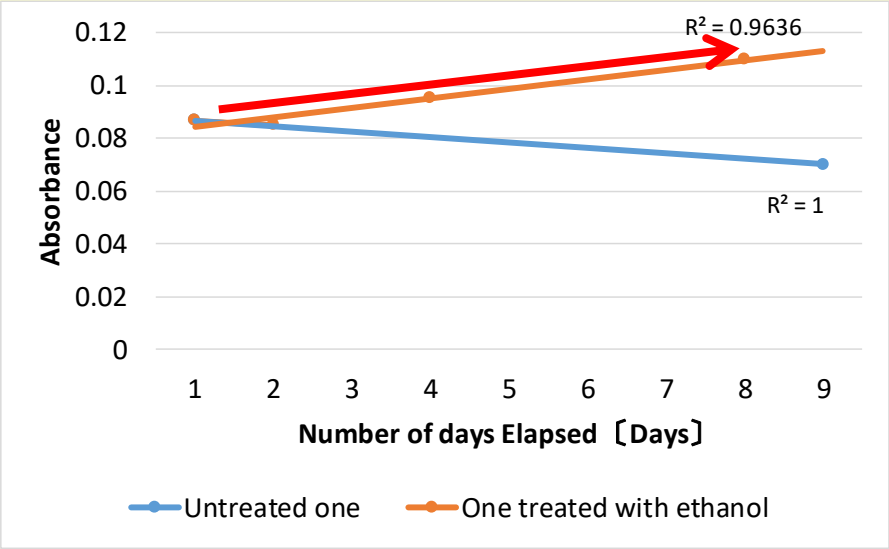
Ethanol treatment →

Result 3

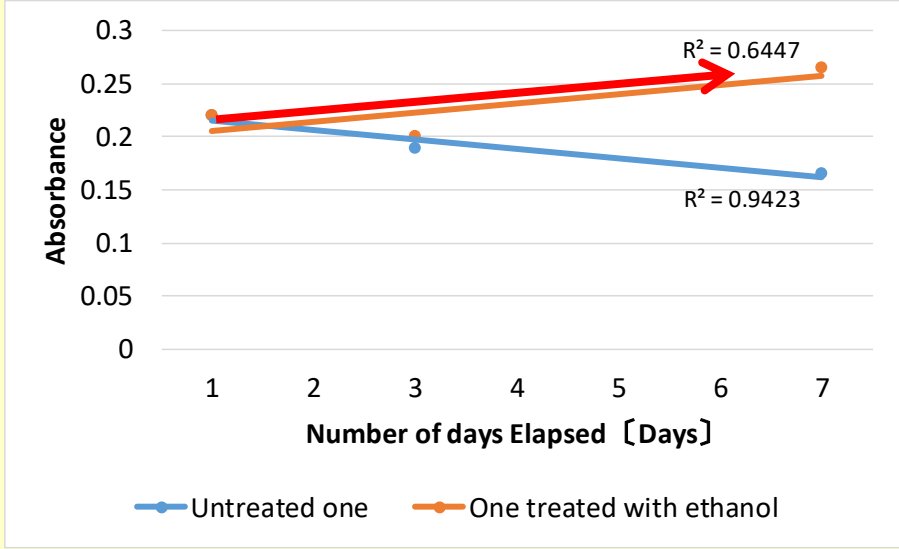
- Untreated one decreased
- Ethanol treated one increased

⇨

- Ethanol concentration was too high.
- Ethanol didn't treat into banana fruit.



The effect of ethanol on bananas 7/14~21



The effect of ethanol on bananas 7/26~8/1

Conclusion

- We found a simple method to measure the amount of tannin in bananas
- We found the effect of ethanol treatment on bananas

Further Challenge

- To find other methods of treatment

Thank you for listening!!