

A STUDY INTO THE HARVESTING PROCESSES OF TRANG PEPPER; WITH RELATION TO ITS EFFECT ON THE PERCENTAGE OF PIPERINE

Submitted by

Mr.Wongsakorn Weerakul and Mr.Kittiwat Junkate

Teachers : Mrs. Patchara Pongmanawut

Mrs. Sirikwan Nuphuti

Princess Chulabhorn Science High School Trang

Introduction

Empirical research with farmers helped our understanding of the origins of trang pepper.



RESEARCH QUESTION

Will different harvesting processes for
Trang pepper affect the percentage
of piperine ?

HYPOTHESIS

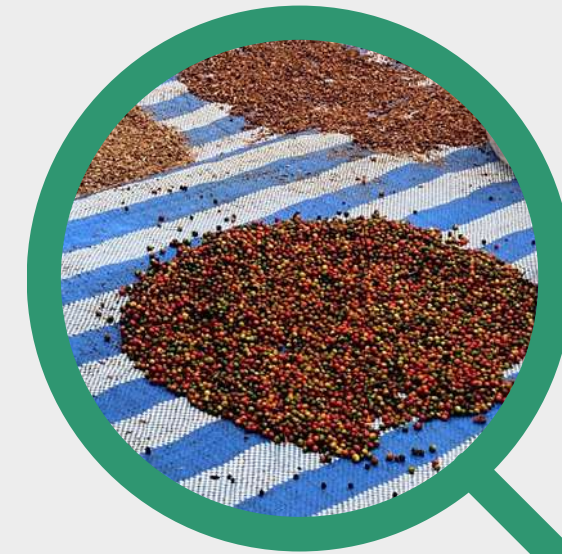
If there are different harvesting processes for pepper, there will be a difference in the percentage of piperine .

METHODS

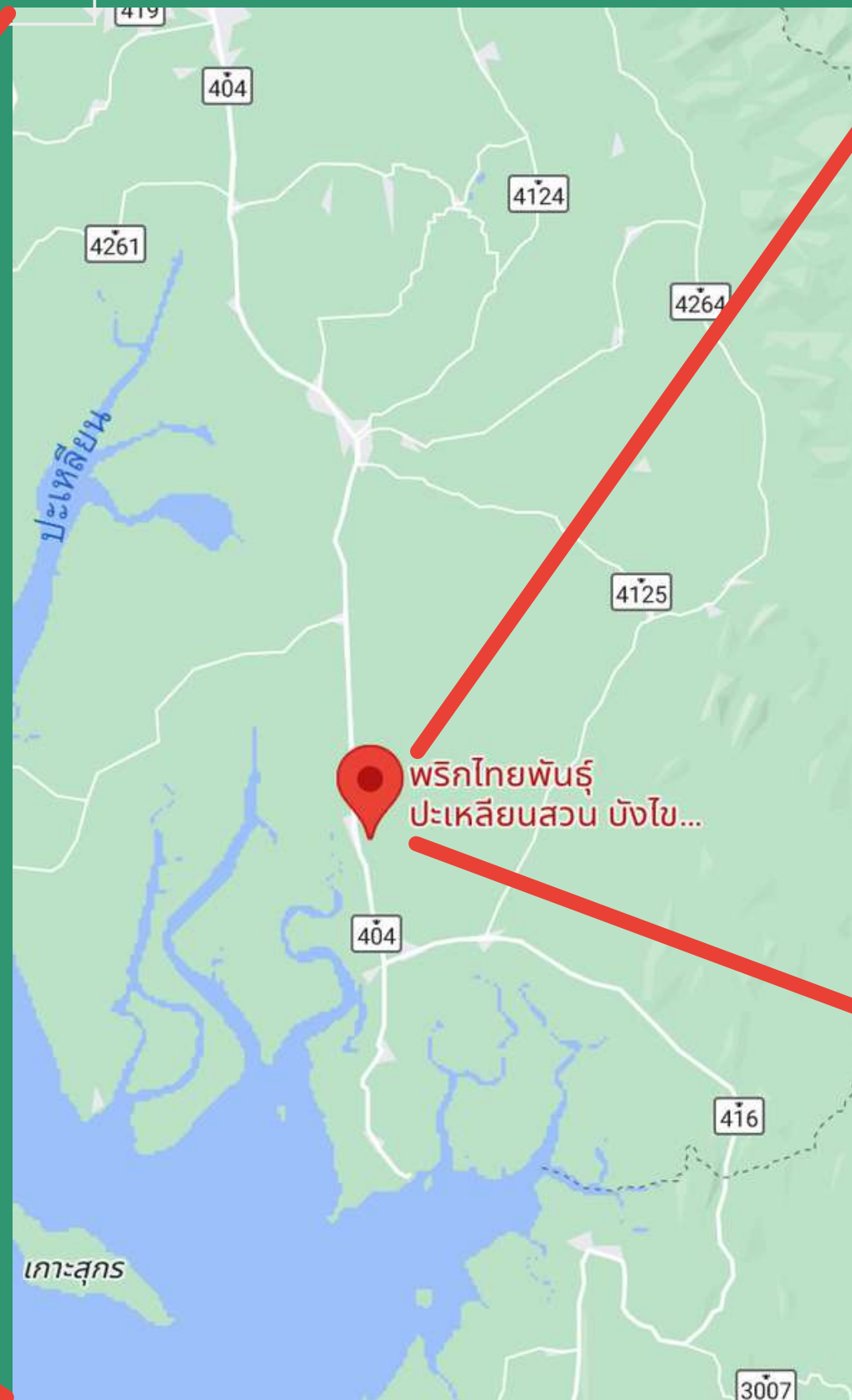
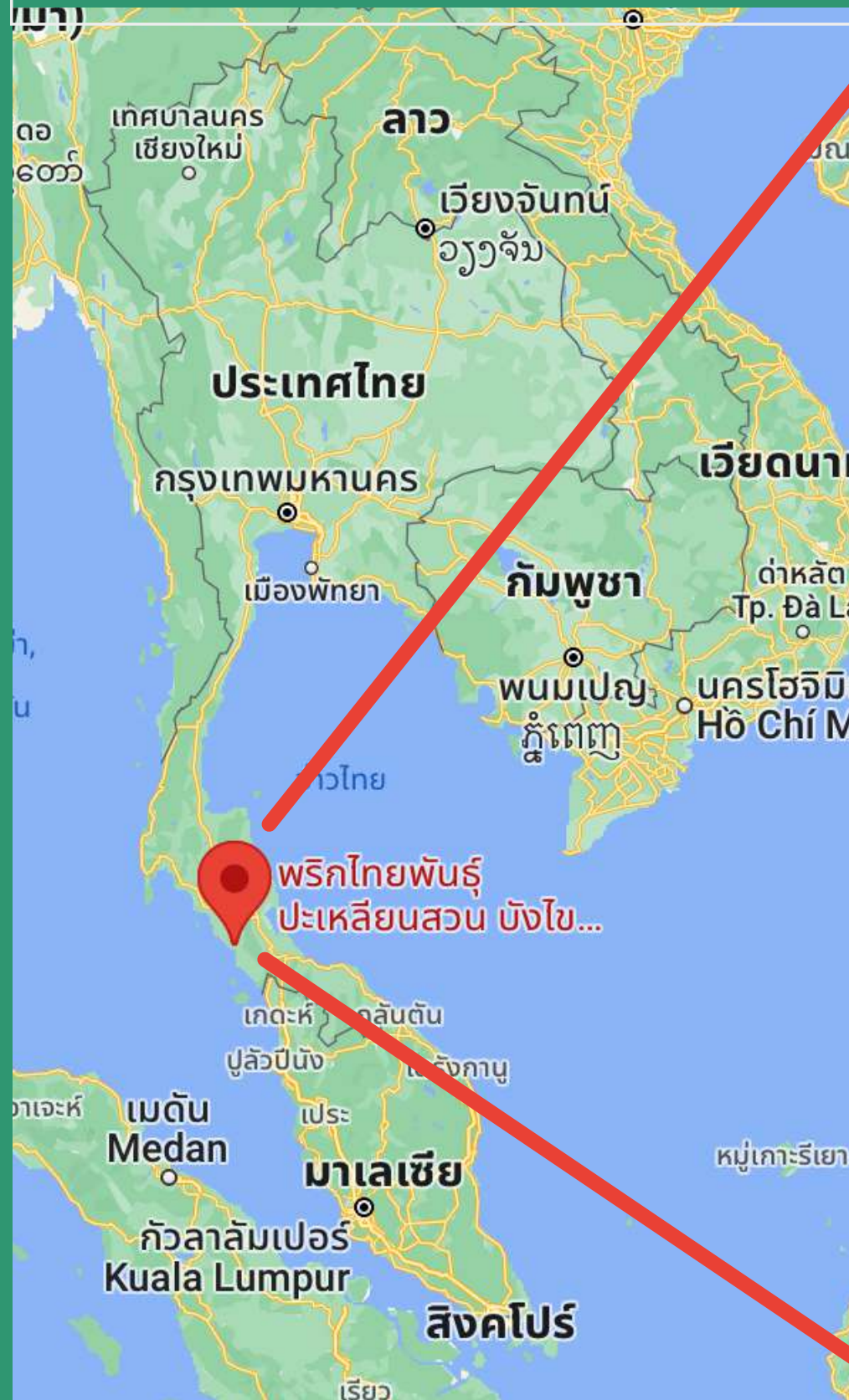
1 The study site

2 The study of weather data

3 The study of percentage piperine content in Trang pepper



1.STUDY SITE

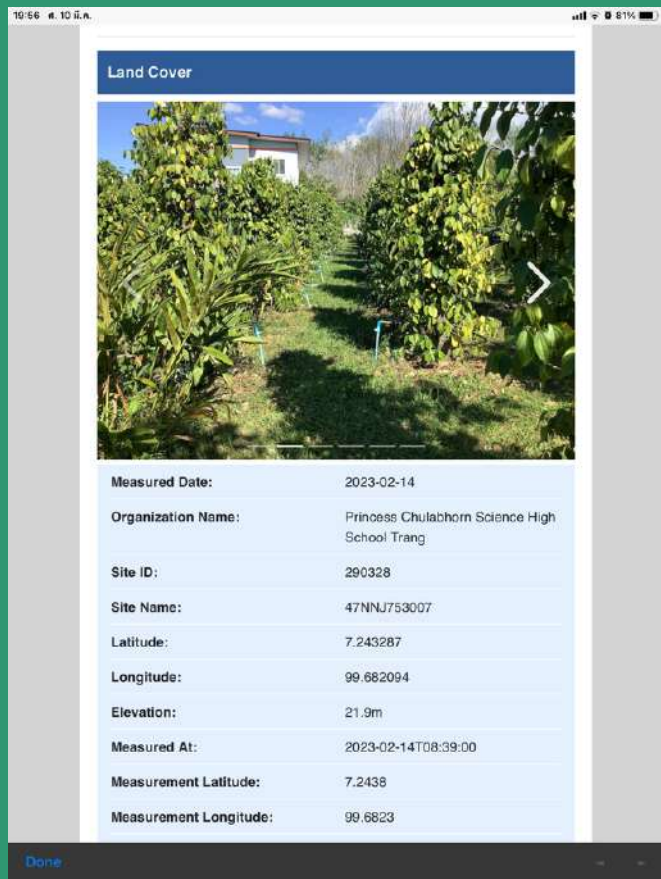


Mr. Charoon Siemmai's pepper plantation

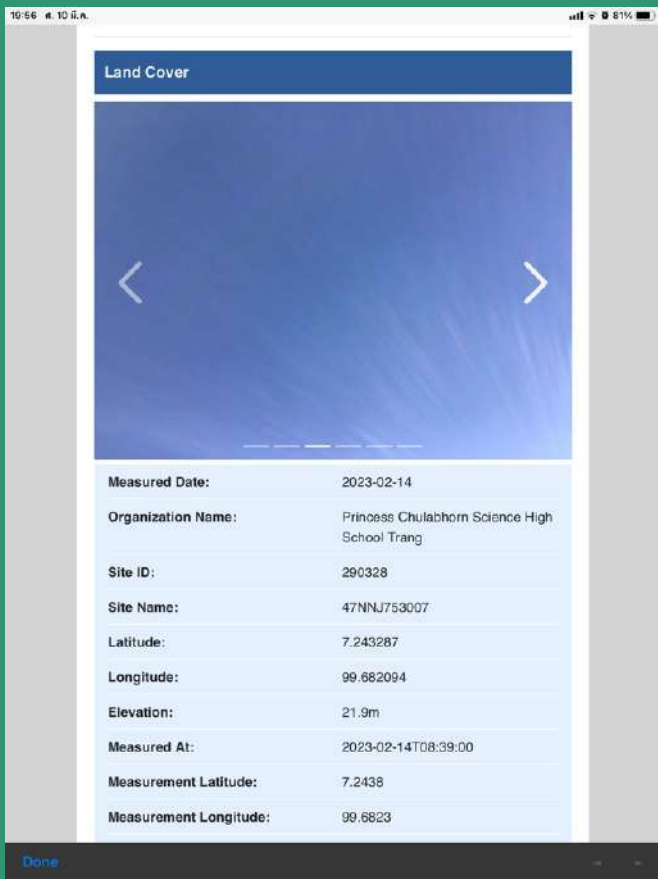
Latitude at 7.243333° N
Longitude 99.681389° E
Mr. Charoon Siemmai's pepper
plantation, (Bang Khai)

METHODS

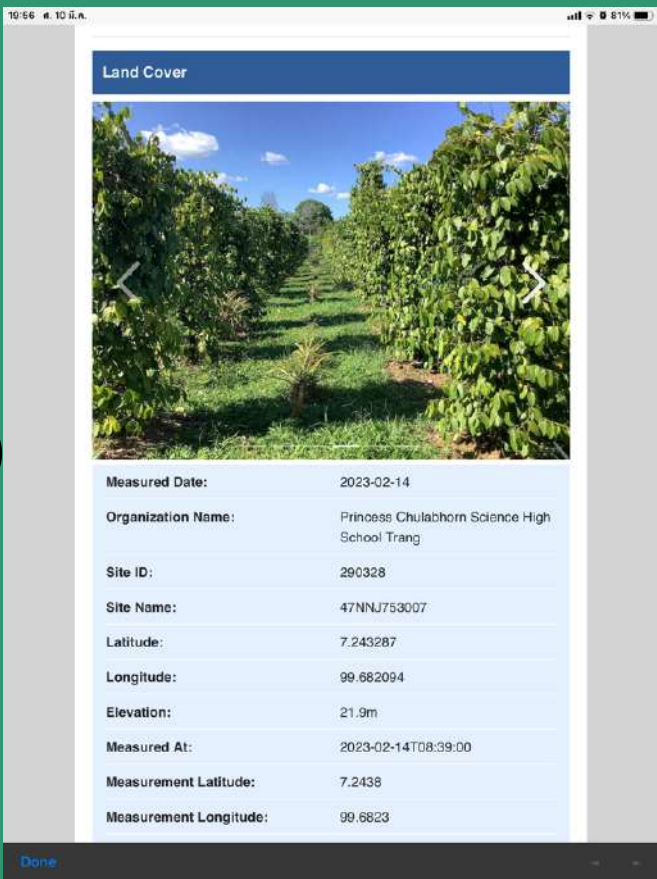
Landcover recording using the Application GLOBE Observer



WEST



UPWARD



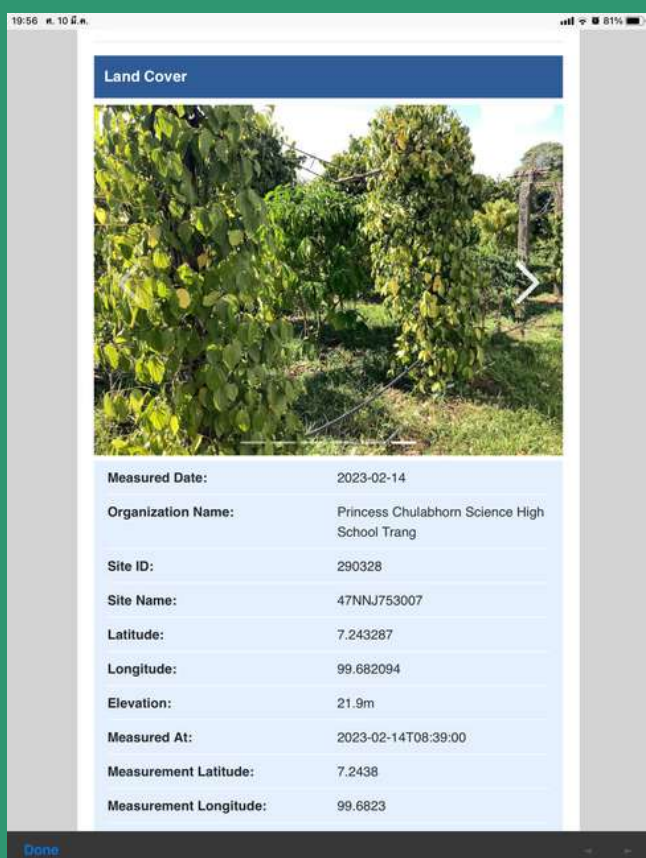
NORTH



EAST



DOWN
WARD



SOUTH

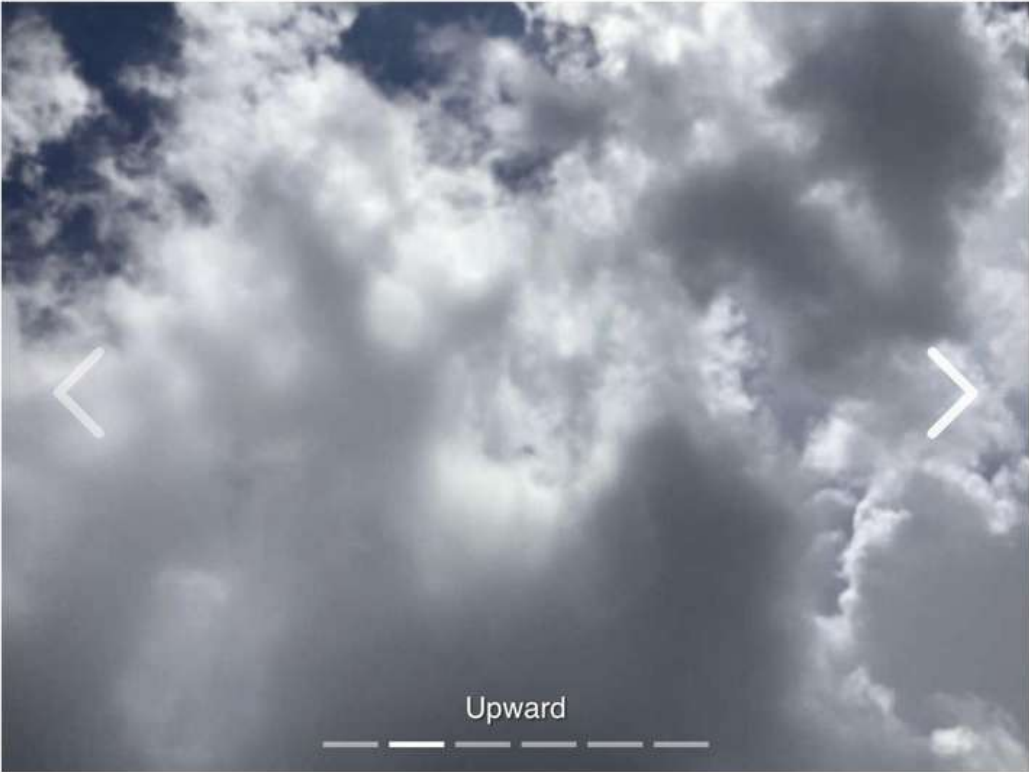
Logging Landcover using the Application GLOBE Observer

METHODS

2. study of weather data


2.1 Clouds recording using the Application GLOBE Observer

Clouds



Measured Date:	2023-01-13
Organization Name:	Princess Chulabhorn Science High School Trang
Site ID:	290326
Site Name:	47NNJ752007
Latitude:	7.243288
Longitude:	99.681188
Elevation:	19.1m
Measured At:	2023-01-13T05:53:00
Solar Measured At:	2023-01-13T12:22:00
Cloud Cover:	broken
Cirrocumulus:	true

Clouds



Measured Date:	2023-02-14
Organization Name:	Princess Chulabhorn Science High School Trang
Site ID:	290328
Site Name:	47NNJ753007
Latitude:	7.243287
Longitude:	99.682094
Elevation:	21.9m
Measured At:	2023-02-14T08:45:00
Solar Measured At:	2023-02-14T15:07:00
Cloud Cover:	isolated
Cirrocumulus:	true

METHODS

2. study weather information

2.2 Weather data collection



weather meter

The data collection period was during 4 - 14 February 2023 at the Bang Charoon Siemmai's pepper plantation by the research group studying 4 sample factors as follows

1. Temperature in the air
2. Air humidity
3. Rainfall
4. Brightness (lumens/m²)

send information to Data Entry

METHODS

3. Study of Percent Piperine Content in Trang Pepper.

PEPPER HARVEST PROCESS

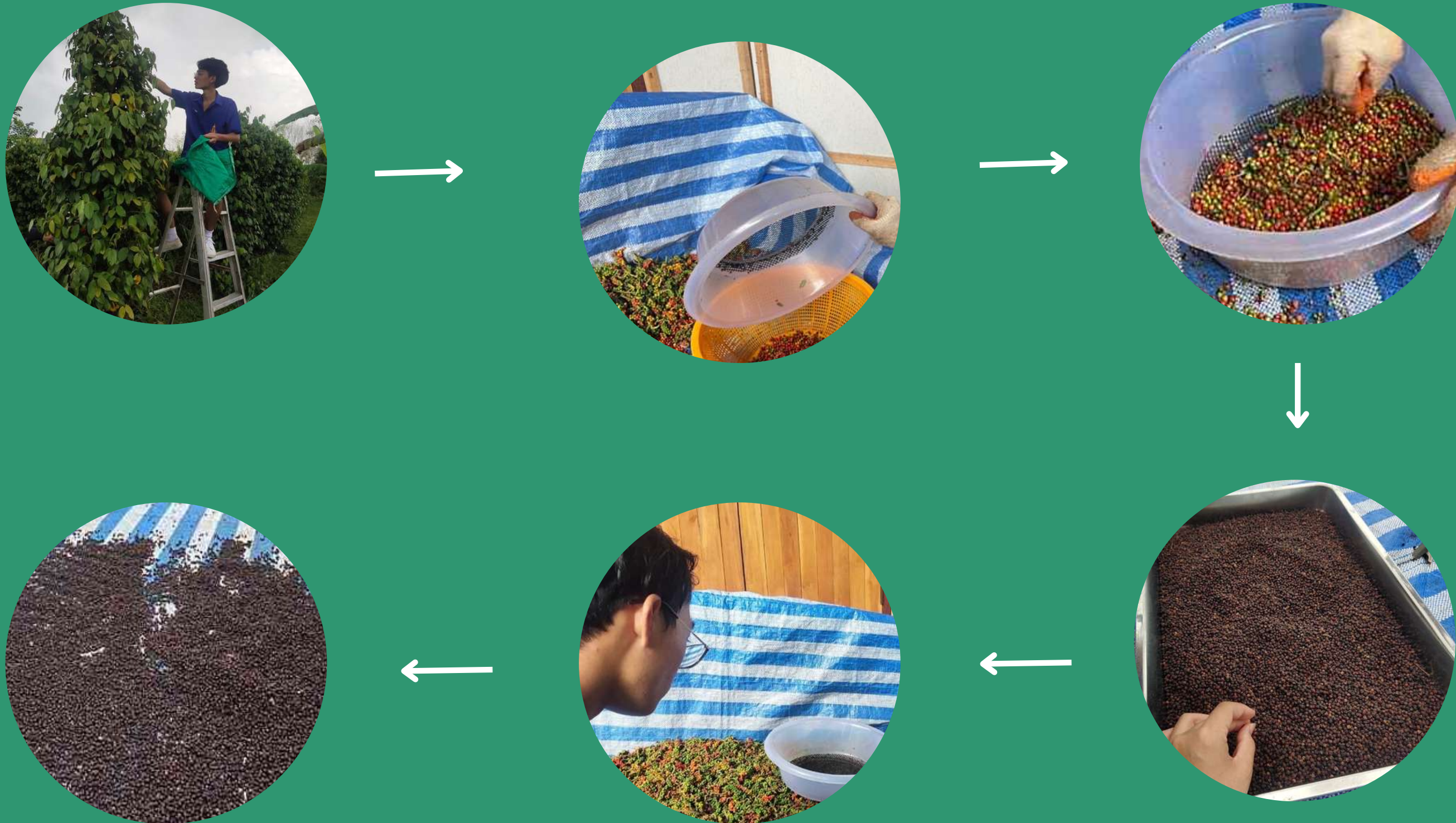


METHODS

PEPPER HARVEST PROCESS A

3.1 Study of Percent Piperine Content in Trang Pepper .

A



METHODS

PEPPER HARVEST PROCESS B

3.1 Study of Percent Piperine Content in Trang Pepper.



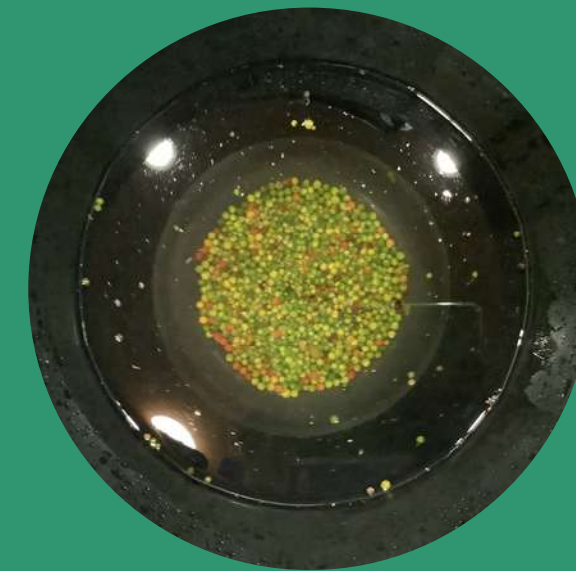
B



METHODS

PEPPER HARVEST PROCESS C

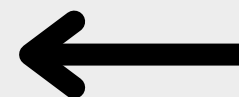
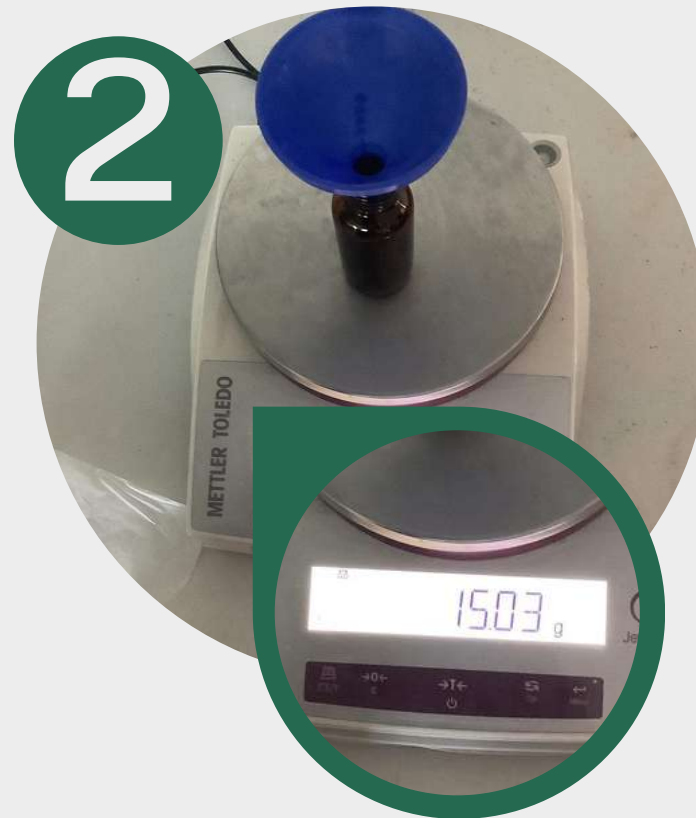
3.1 Study of Percent Piperine Content in Trang Pepper



C

METHODS

3.2 Preparation before piperine test



METHODS

PIPERINE EXTRACTION

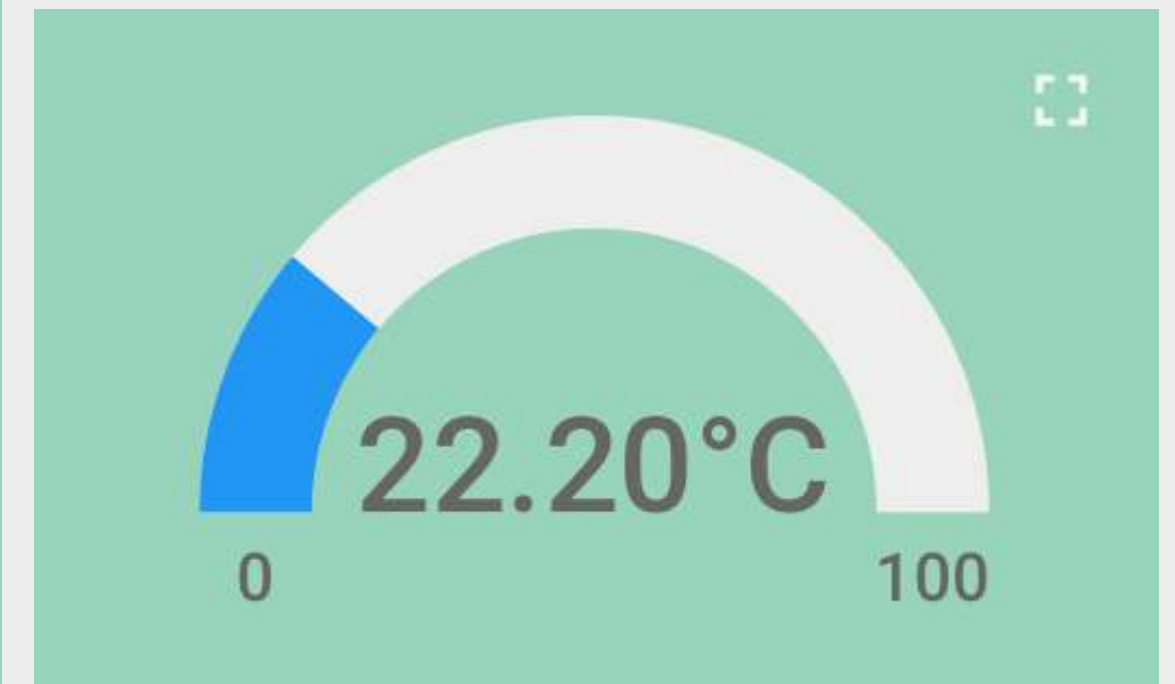
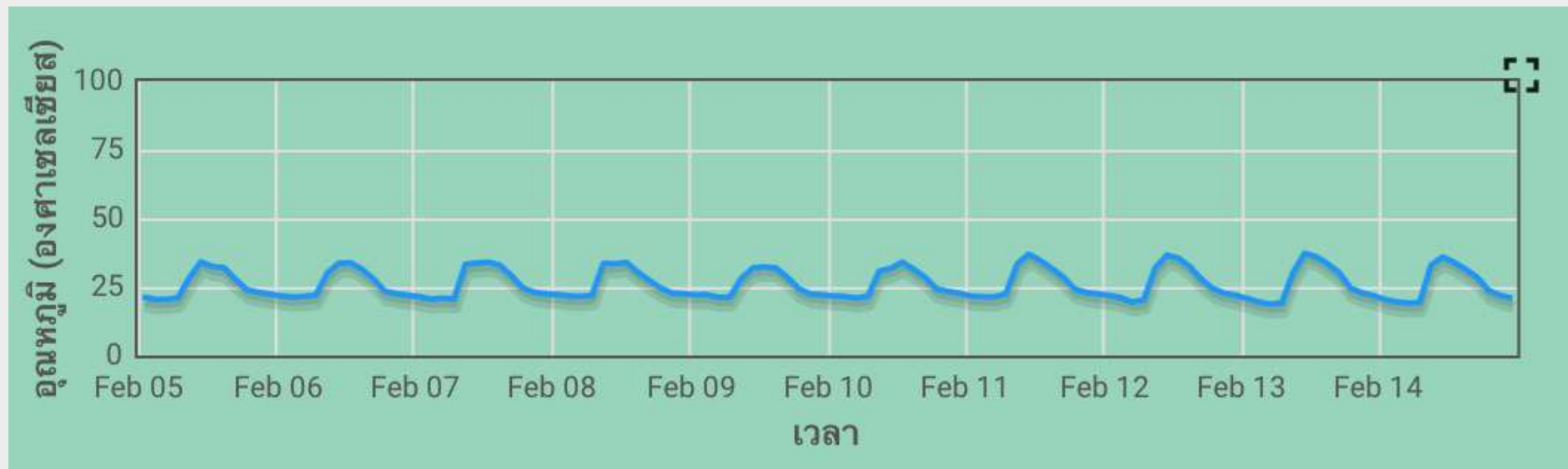
Percent piperine content determination by HPLC chromatogram.



RESULTS WEATHER DATA

1. Results of the study of weather data

1.1 Air temperature

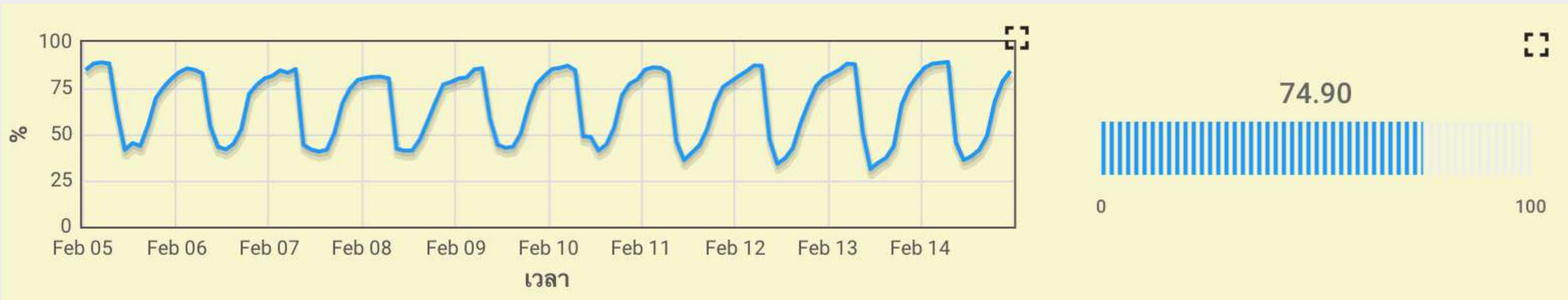


Graph showing air temperature as of 4-14 February 2023

RESULTS WEATHER DATA

1. Results of the study of weather data

1.2 Air humidity

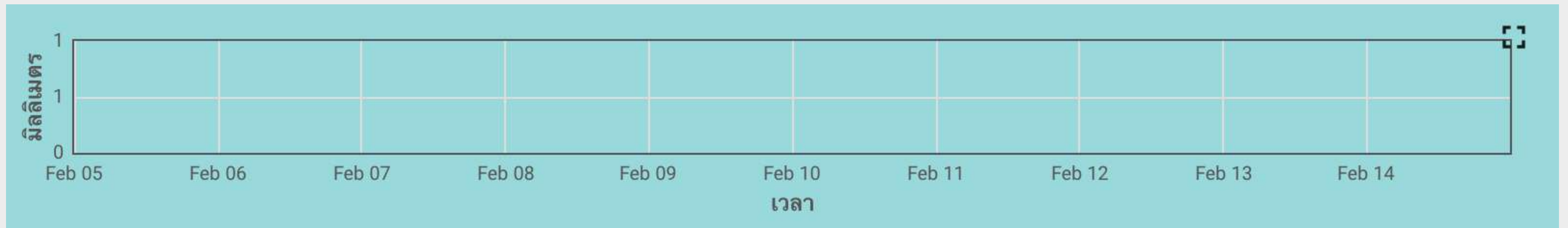


Graph showing humidity in the air as of 4-14 February 2023

EXPERIMENTAL RESULTS

1. Results of the study of weather data

1.3 Rainfall

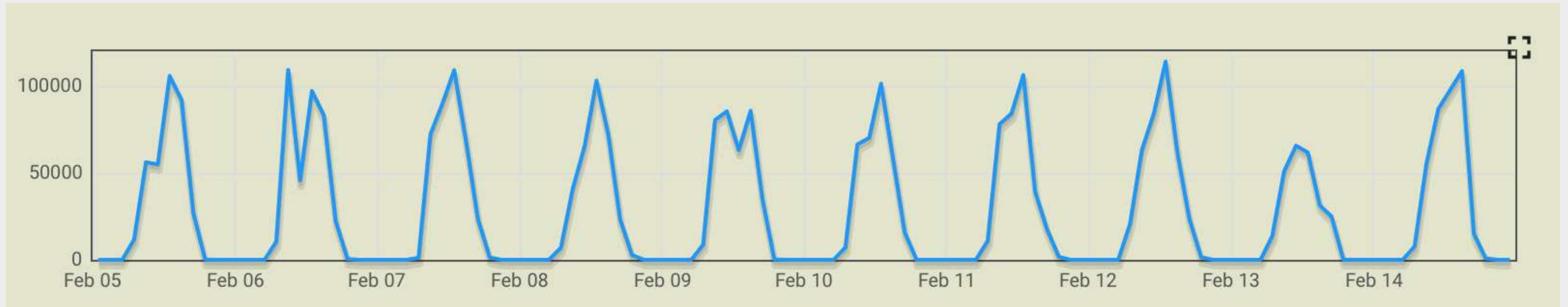


Graph showing rainfall as of February 4-14, 2023

EXPERIMENTAL RESULTS

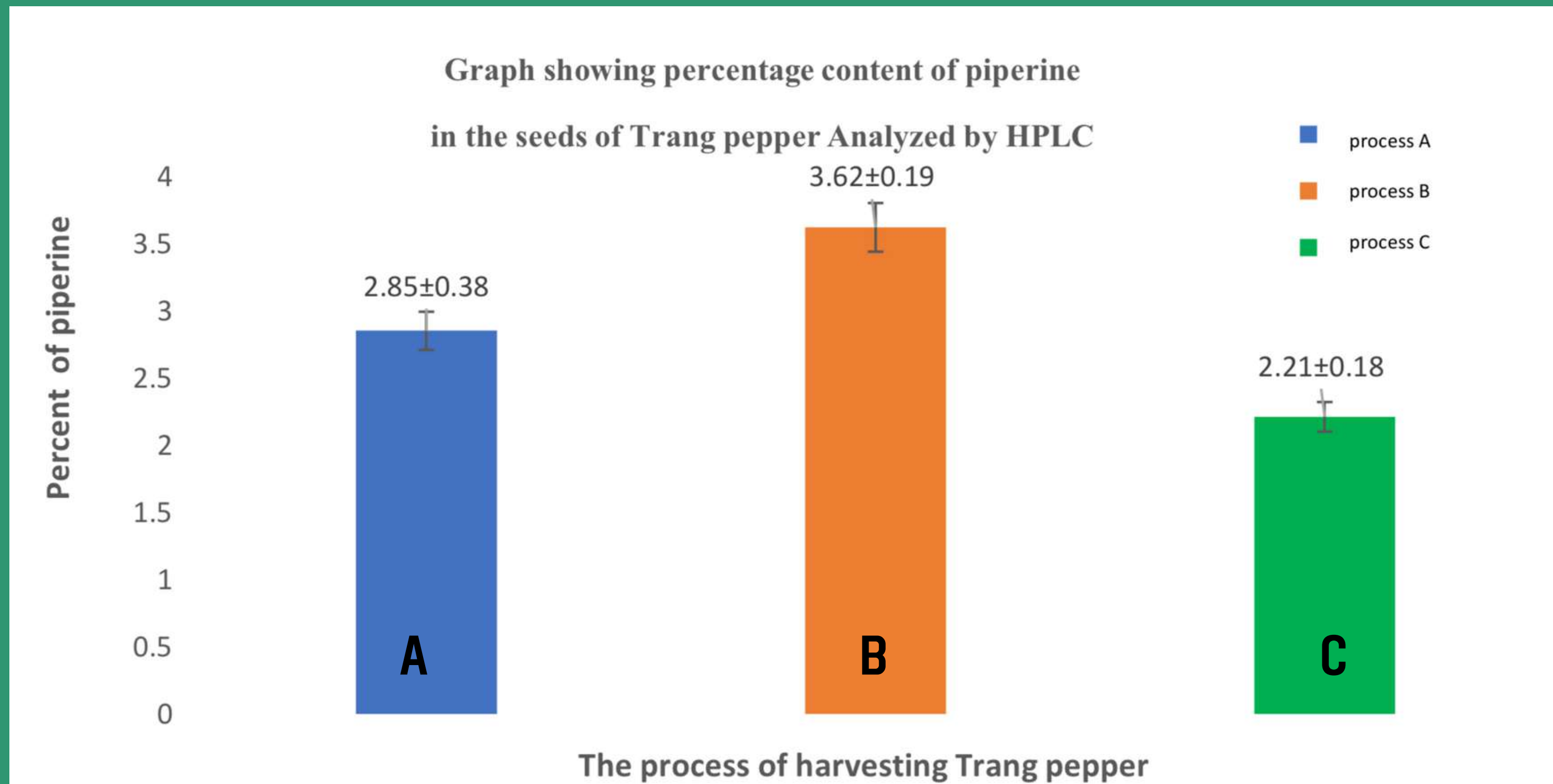
1. Results of the study of weather data

1.4 Brightness (lumens/m²) /lux



Graph showing brightness value as of 4-14 February 2023

EXPERIMENTAL RESULTS



Graph showing percentage content of piperine analyzed by HPLC in Trang pepper grains.

CONCLUSION

From the experiments, it can be concluded that the harvesting process of Trang pepper different causes the percentage of piperine to be different as follows :

1. The average percentage of piperine in harvesting process A was 2.85
2. The average percentage of piperine in harvesting process B was 3.62
3. The average percentage of piperine in harvesting process C was 2.21

The harvesting process with the highest percentage of piperine was Method B, which had a different harvesting method than other methods by to incubate fresh pepper seeds for 2 nights before drying them.

BENEFITS

1. Get to know the process of harvesting the Trang peppers with the highest percentage of piperine.

2. Know the harvesting process that can control the quality of Trang pepper.

3. Bring research data to disseminate to the community to maintain quality and increase the value of Trang peppers.



IMPACT TO COMMUNITY



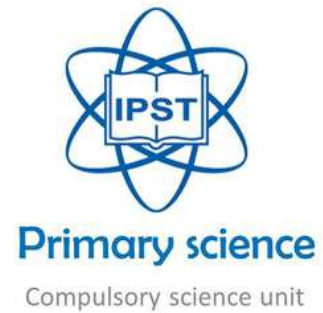
References

- Rajamangala University of Technology Srivijaya. Circular Economy in Trang Province. Retrieved on July 4, 2022 from https://cdn.fbsbx.com/v/t59.270821/292050554_1076036046683526_254798636655640401_n.pdf/Complete Research Report Chapter- 3m _Preliminary30062565
- Original Department of Intellectual Property. (2017). Registration of Geographical Indications. Retrieved on July 4, 2022 from <https://www.ipthailand.go.th/images/3534/2563/GI/G163100144.pdf>
- Ministry of Industry. (2013). Abolish and set industrial standards for pepper. Accessed on 4. July 2022 from <http://www.ratchakitcha.soc.go.th/IDATAV/PDF/2556/E/093/4.PDF>

ACKNOWLEDGMENT



THE GLOBE PROGRAM



**INSTITUTE FOR THE PROMOTION OF TEACHING SCIENCE
AND TECHNOLOGY (IPST)**



WALAILAK UNIVERSITY



RAJAMANGALA UNIVERSITY OF TECHNOLOGY SRIVIJAYA



PRINCESS CHULABHON SCIENCE HIGH SCHOOL TRANG

THANK YOU

