

TISSUE CULTURE AND FIELD COMPARISON OF SALT WATER RESISTANT TARO

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OBJECTIVES:

Background Info

Introduction

Hypothesis & Question

Methods

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Conclusion

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References

Acknowledgements &
Funding

BACKGROUND INFO:

- Taro is a traditional and staple food for us Palauans as well as the Pacific.
- My previous research showed that collected varieties from the field had varying degrees of saltwater tolerance in a lab setting.
- Not all taro are able to grow on taro patches that are affected by the saltwater and determining which collections are is important to understanding innate saltwater tolerance in varying edible Araceae in Palau.
- Identify which taro varieties are able to grow in the taro patches with varying levels of salinity.

INTRODUCTION:

- Instead of doing lab activities, which was done in the previous research project and is continued by my colleague, I'm doing a research within collecting data and analyzing which types of taro are thriving.
- With the weather station system known as soil probe it helps me gather the data within the taro patch to help me analyze and identify which taro varieties are able to grow and are present in taro patches affected by the sea level rise.
- Although there are many taro varieties in Palau , not all of them are able to survive in places that have high soil salinity.
- In some places, there are different ways to grow taro plants because of these problems where climate change is taking over causing the sea level to rise and where the taro patches are located.



HYPOTHESIS:

- The research on soil assessment, data collection and DNA Extraction to find salt resistant genes that are able to grow within the salt water affected areas.

RESEARCH QUESTION:

- How we can use soil probe data to identify which taro varieties are thriving in higher Electrical Conductivity (EC)?

MATERIALS / METHODS:

- Soil Probes

- Data Collection
- Data analysis

And see what types of taro plants are present in the taro patch.

- Interviews

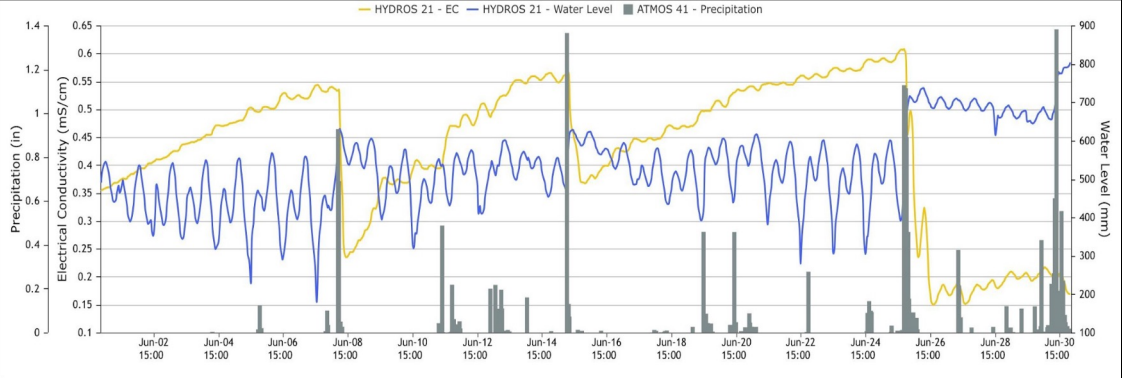
- Data collection site:

- Hatohobei
- Peleliu
- Ngermeskang, Ngeremlengui
- Ngerbeched, Koror

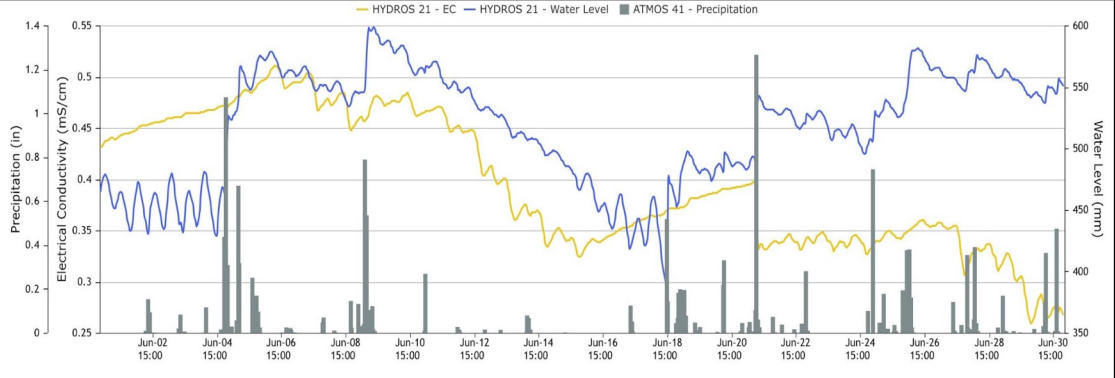


RESULTS

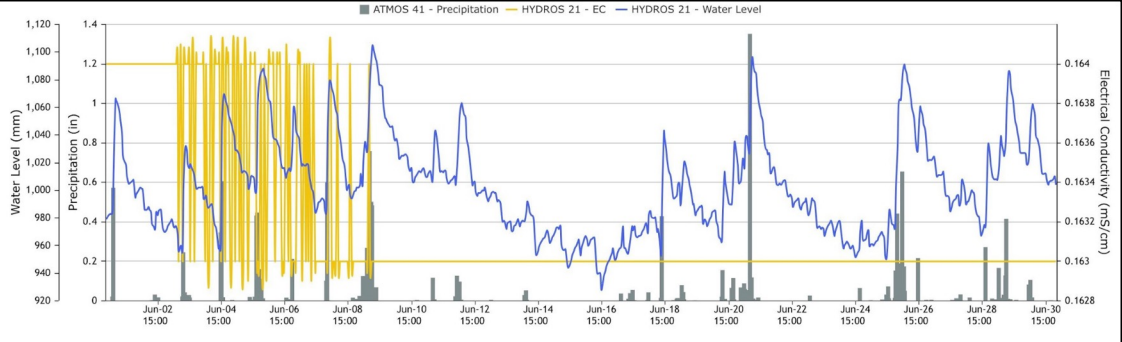
Hatohobei



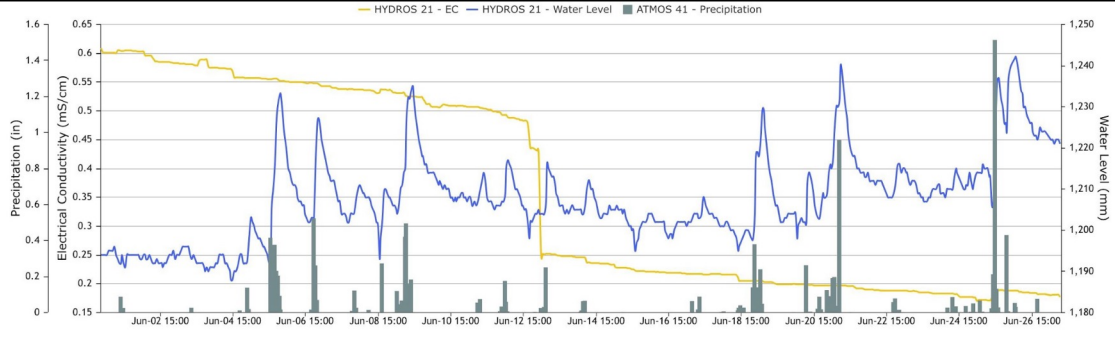
Peleliu



Ngermeskang, Ngeremlengui



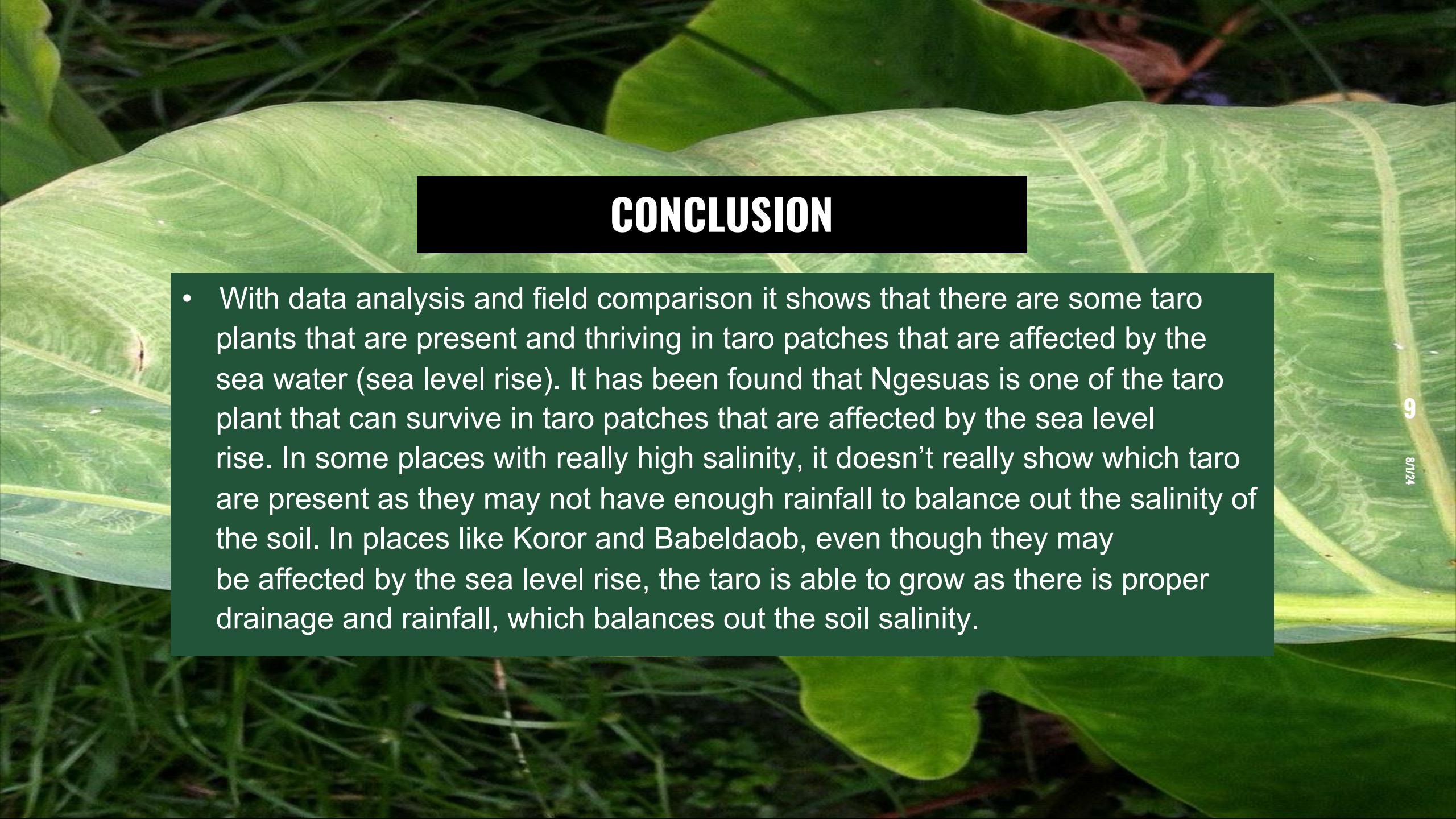
Ngerbeched, Koror



TYPES OF TARO VARIETIES IN PALAU & PRESENT IN THE PLACES INVOLVED IN THE STUDY:

Local Varieties:	- Ochelochel - Ordiil - Okelang - becheleleu - Renged - Terebkul - Terrekakel - Thomas - Ungil dil - Urungel - Ulechেম	- Samoa 116 - Samoa 128 - Samoa 151 - Indonesia 14 - PNG 3 - Malaysia 12 - Malaysia 14
- Dilisor - Dirrauosech - Dirratengadik - Dirrubong - Dois - Dungersuul - Dung Ra Terrekakl - Erderid - Esuuch - Homusted - Kerdeu - Kirang - Meltalt - Merii - Miuako Ngkeklau - Miuako Ouberburs - Ngermekeang - Ngertmau - Ngeruuch - Ngesuas - Ngetmadei - Ochab	Introduced Varieties:	Other Varieties:
	- Hawaii 12 - Hawaii 26 - Hawaii 37 - Samoa 10 - Samoa 12 - Samoa 44 - Samoa 111 - Samoa 114 - Samoa 115	- Hawaii 15 - Tiger - Tewehiyeh (Local Tobi Taro)

Hatohobei	Peleliu	Ngermeskang	Ngerbeched
- Hawaii 15 - Tiger - Tewhiyeh (local Tobi Taro)	Ngesuas Kirang	- Ungildil - Dois - Dirrubong - Dirrauosch - Ngesuas - Dungersuul - Ochab - Terrekakl - Kirang - Hawaii 12	- Ngesuas - Kirang
Comparing with these 4 site Brak known as Alocasia or Giant taro, Kirang and the Ngesuas taro are present. The state of Hatohobei and Peleliu are the mostly affected by the sea level rise and it shows Ngesuas and Kirang are thriving.			



CONCLUSION

- With data analysis and field comparison it shows that there are some taro plants that are present and thriving in taro patches that are affected by the sea water (sea level rise). It has been found that Ngesuas is one of the taro plant that can survive in taro patches that are affected by the sea level rise. In some places with really high salinity, it doesn't really show which taro are present as they may not have enough rainfall to balance out the salinity of the soil. In places like Koror and Babeldaob, even though they may be affected by the sea level rise, the taro is able to grow as there is proper drainage and rainfall, which balances out the soil salinity.

FUTURE DIRECTIONS

- Plant taro varieties that are present in taro patches that are affected by saltwater inundation.
- Improve drainage system to match traditional methods.
- Conduct field tests on salt resistant taro varieties with relation to salinity in field.
- Conduct DNA Extractions on salt water resistant taro to identify genes linked to this phenomenon (Presented by my STEP-UP colleague Ava Planz).
 - **Taro Involved in the DNA Extraction Study:**
 - Kirang (Colocasia)
 - Brak (Cyrtosperma)
 - Bisech (Alocasia)
 - Ngesuas (Colocasia)
 - Samoan (Colocasia)
 - Ngetmadei (Colocasia)
- Monitor soil assessment, and ground water status.



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ACKNOWLEDGEMENT

- The STEP-UP HS program is supported by the National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health, Grant Number: 5R25DK078386-18