

Tissue Culture and Field Comparison of Salt Water Resistant Taro in Palau

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ABSTRACT

Saltwater intrusion occurs when saltwater infiltrates and displaces freshwater in various ways such as excessive groundwater pumping, sea level rise, or changes in land use. This can contaminate freshwater sources, impacting ecosystems and agriculture. Saltwater intrusion poses a significant threat to the growth and well-being of taro patches around Palau. The elevated salt levels in the soil can impede the proper development of taro plants, leading to growth issues and potential crop failures. To understand and address this issue, soil assessment via probes is underway to collect data including precipitation levels, groundwater status, soil water content, and electrical conductivity across the island. Additionally, DNA extraction of different taro varieties in Palau will be completed to identify salt-resistant genes in tandem with the field testing. This comprehensive data collection will connect the environmental conditions affecting the taro plants and genomics to devise effective strategies to mitigate saltwater damage. This identification process is critical for further research in mutation breeding to increase the salt-resistant gene in other taro varieties. This experiment looks at field testing for salt-water varieties of taro tested in the lab versus locally available plant varieties. There was no significant difference in corm sizes which may indicate that varieties in Palau have a high degree of innate or trained saltwater tolerance. In conclusion, saltwater intrusion is a significant issue in Palau, as well as other Pacific regions. The use of soil probes in tandem with crop development allows for a comprehensive and functional way to increase taro production.

KEY WORDS: Saltwater intrusion, Freshwater sources, Saltwater tolerance

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