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Master Thesis Defense

Entitled

*THE POTENTIAL EFFECTS OF ABIOTIC STRESSES ON ZIZIPHUS AND ACACIA SPECIES GROWN UNDER UAE
CLIMATE CONDITION*

By

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Abstract

This comprehensive thesis delves into a comparative analysis of two prominent desert plant species, namely Acacia and Ziziphus, shedding light on their distinct adaptive features in response to challenging environmental conditions. The exploration spans various facets, including the germination process, tap root development, and their reactions to water stress, ultimately revealing the superior hardiness and adaptability of Acacia over Ziziphus. In the realm of germination, Acacia stands out with its swift and efficient initiation, indicating a robust mechanism for establishing its presence in arid landscapes. The examination of tap root development further underscores the resilience of Acacia, as it demonstrates a more intricate and branched system, allowing for enhanced nutrient and water absorption from the soil. Additionally, the study highlights Acacia's remarkable ability to adjust its growth patterns in response to water stress, showcasing its adaptability to harsh environmental fluctuations. These findings contribute significant insights into the nuanced mechanisms governing the survival of plant species in arid environments. The implications of this research extend beyond mere academic curiosity, holding relevance for practical applications in ecosystem management, afforestation initiatives, and the development of resilient crops. Understanding the intricacies of plant physiology in the context of climate challenges becomes paramount for addressing the pressing issues of global climate change. Therefore, this thesis not only advances our knowledge of the adaptive strategies employed by Acacia and Ziziphus but also underscores the importance of leveraging this understanding for sustainable environmental practices. The implications extend to fields such as afforestation and agriculture, where resilient plant species play a crucial role in mitigating the impact of climate change and ensuring the sustainability of ecosystems.

Keywords: Desert Plant Adaptation, Comparative Analysis, Acacia Resilience, Water Stress Response, Germination Dynamics, Ecosystem Management, Tap Root Development, and Ecosystem Resilience.