

ABSTRACT

Maurent Jessica Arintaria. 2402011714063. Morphological Characterization and Molecular Identification of Sugar Palm (*Arenga* sp.) and Willow (*Salix* sp.) Based on Internal Transcribed Spacer (ITS) Region. Under the guidance of Hermin Pancasakti Kusumaningrum and Drs. Agung suprihadi, M.Si.

*Indonesia's rich biodiversity includes over 2,039 medicinal plant species, with 7,000 species used therapeutically. This study focuses on the morphological and molecular characterization of Sugar Palm (*Arenga* sp.) and Willow (*Salix* sp.) using the Internal Transcribed Spacer (ITS) region. The morphological analysis involved detailed leaf and stem characteristics observations, while molecular methods included DNA isolation using the CTAB method, PCR amplification, and electrophoresis. The DNA sequences obtained were analyzed to construct phylogenetic trees using BioEdit, NCBI, and MEGAX software. The results identified the Sugar Palm as *Arenga pinnata* and the Willow as *Salix matsudana*. Integrating morphological and molecular data provides a comprehensive understanding of these plants' genetic and morphological diversity. This study contributes to plant taxonomy and phylogenetics knowledge and supports these species' conservation and potential medicinal use. By combining traditional morphological methods with modern molecular techniques, this research offers a robust framework for plant identification and classification, highlighting the importance of preserving Indonesia's botanical heritage.*

*Keywords: molecular identification, morphological characterization, phylogenetics, *Salix matsudana*, *Arenga pinnata*.*