**THESIS**

# IDENTIFICATION OF ARTHROPODS ON SUGAR PALM (*Arenga pinnata* Merr.)PLANTS WITH THE ADDITION OF WILD PETTUNIAN PLANT (*Ruellia tuberosa* L.) IN ULAK SEGELUNG VILLAGE SOUTH SUMATERA

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**2024**

## SUMMARY

**TUKKOT PAKPAHAN** Identification of Arthropods on Sugar Palm (*Arenga pinnata* Merr.) Plants with the Addition of Wild Pettunian Plant (*Ruellia tuberosa* L) in Ulak Segelung Village, South Sumatra (supervised by **WERI HERLIN**).

Sugar palm (*Arenga pinnata* Merr.) is a plantation crop that has considerable potential for cultivation. This plant can be used both in terms of economy and ecology. Arthropods are one of the factors that affect the growth of sugar palm plants. The lack of information about arthropods associated with refugia plants prompted the conduct of this research. The objective of this study is to examine the diversity of arthropods in sugar palm plantations that include wild pettunian refugia plants, and to draw comparisons with earlier studies carried out in Ulak Segelung Village, Ogan Ilir, South Sumatra. This research was conducted from June 2024 to October 2024 using the purposive random sampling method. There were 4 traps used in this study, namely the sweep net, yellow sticky trap, pitfall trap, and light trap. The specimens found were then identified at the Laboratory of the Department of Plant Pests and Diseases, Sriwijaya University.

Analysis using NCSS software showed a P-value <0.01 for the relationship between observation week and arthropods, traps, and insects, as well as light traps and arthropods, which means there is a significant effect. Meanwhile, the relationship between refugia plants and arthropods and observation days and



**Keywords**: sugar palm, arthropods, refugia, diversity

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As One of the Requirements to Acquire Bachelor's Degree in Agriculture at the Facultyof Agriculture, Sriwijaya University

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## APPROVAL SHEET

# IDENTIFICATION OF ARTHROPODS ON SUGAR PALM (*Arenga pinnata* Merr.) PLANTS WITH THE ADDITION OF WILD PETTUNIAN PLANTS (*Ruellia tuberosa* L.) IN ULAK SEGELUNG VILLAGE SOUTH SUMATERA

## THESIS

As One of the Requirements to Acquire Bachelor of Agriculture Degree in Faculty of Agriculture, Sriwijaya University

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Thesis entitled "Identification of Arthropods on Sugar Palm (*Arenga pinnata* Merr.) with the Addition of Wild Pettunian Flowers (*Ruellia tuberosa* L.) in Ulak Segelung Village, South Sumatra" by Tukkot Pakpahan has been defended before the Thesis Examination Commission of the Faculty of Agriculture, Sriwijaya University and has been corrected according to the suggestions and input of the examining team.

Commission of Examiners

| | | |
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Stating that all data and information contained in this thesis except those clearlymentioned sources are really the results of my own observations and data collection in the field and have never been or are not being presented as a requirement for obtaining another degree or degree elsewhere.

Thus I make this statement in a state of consciousness and do not get coercion from other parties.

Indralaya, December 2024


Tukkot Pakpahan

## LIFE HISTORY

The author named Tukkot Pakpahan was born on August 31, 2003. The author comes from Tagahambing, Pakpahan Village, Pangaribuan District, North Tapanuli Regency, North Sumatra Province. The author is the second child of Mr. Bigston Pakpahan and Mrs. Rintauli Nainggolan and has 1 older brother, 2 younger sisters and 3 younger brothers.

The author completed his basic education at HKBP Pakpahan Private Elementary School from 2009 to 2015. The author then continued his junior high school education at SMP Negeri 1 Pangaribuan from 2015 to 2018. After that, the author completed his senior high school education at SMA Negeri 1 Pangaribuanfrom 2018 to 2021. During his education, the author was active in choir activities and various competitions.

The author is currently continuing his studies as a student of the Agroecotechnology study program, majoring in Agricultural Cultivation, Faculty of Agriculture, Sriwijaya University. During college, the author was an active member of the Agroecotechnology Student Association (HIMAGROTEK) of Sriwijaya University. In addition, the author is also active as a practicum assistant in several courses and also several organizations on and off campus.

# INTRODUCTION

Praise to God Almighty for all His Gifts so that the author can complete the thesis with the title "Identification of Arthropods on Sugar Palm (*Arenga pinnata* Merr.) Plants with the Addition of Wild pettunians (*Ruellia tuberosa* L.) in Ulak Segelung Village, South Sumatra". This thesis is written as one of the requirements toobtain a bachelor of agriculture degree at the faculty of agriculture at Sriwijaya University.

In the process of completing this thesis, the author would like to thank:

1. The Lord Jesus Christ whose grace has strengthened and encouraged the author to be at this point.
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The author realizes that in the process of writing this thesis there are still many shortcomings and far from perfect, therefore, the author really hopes for criticism and suggestions from all parties that can help improve and perfect future writing. Finally, the author would like to thank you. Hopefully this thesis is useful for the wider community.

Indralaya, December 2024

Author

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# CHAPTER 1
# INTRODUCTION

## 1.1. Background

Plantations are one of the sectors that support national economic growth (S yarifah *et al.*, 2018). This is because Indonesia is a country with a tropical climate that supports the growth and development of plantation crops (Lukas, 2016). The sugar palm (Arenga pinnata Merr.) is a potential plantation crop that can thrive in a variety of climates, from lowlands to 1400 meters above sea level (Harahap, 2017). Every year, sugar palm plantations in Indonesia have grown by 2% with an area of 61,924 ha. In addition, the growth rate of palm production increased by 1.9% (Ulfa and Asmarahman, 2023). Based on 2018 agricultural statistics, the area of sugar palm plantations in South Sumatra reached 1,095 ha and produced 297 tons of palm sugar. Ogan Komering Ulu (OKU) Regency is the region with the most extensive sugar palm plantation area in South Sumatra (Novendra and Sidik, 2023). According to Artika and Herwanti (2015), the sugar palm plant possesses the ability to grow wildly, making it a valuable plant for soil and water conservation, erosion prevention, and ecological benefits. From an economic perspective, the sugar palm plant can yield high-value products such as fibers for brooms, leaf bones for broomsticks, kolang kaling, and nira water from the male flowers (Webliana & Rini, 2020).

Arthropods, which can serve as pollinators, pests, natural enemies, or decomposers, significantly influence the growth of sugar palm plants in plantations (Mulyanie and Romdani, 2018). Withanigsih et al. (2021) found that several arthropods from Apidae (Apis cerana, Apis dorsata, Trigona sp.) and Drosophilidae (Drosophila sp.) frequently surround sugar palm plants and flowers in sugar palm plantations. Furthermore, Herlin et al.'s (2024) research indicates that sugar palm plantations frequently host arthropods from the orders Lepidoptera, Hymenoptera, Coleoptera, and Diptera. Environmental factors and the surrounding vegetation undoubtedly influence the diversity of arthropods in the plantation area. Arthropods will occupy a habitat where diverse plant species are present, thereby increasing the diversity of arthropods living there (Herni et al., 2016). Plants will serve as a habitat,

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