KORELASI ANTARA IKLIM MIKRO DAN KOMPOSISI VEGETASI GULMA DI BERBAGAI LAHAN PERKEBUNAN

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RINGKASAN

Penelitian ini bertujuan untuk mengetahui korelasi iklim mikro dan komposisi vegetasi gulma di berbagai lahan perkebunan di Politeknik Negeri Lampung. Hasil penelitian menunjukkan bahwa iklim mikro di lahan dengan naungan lebih banyak seperti lahan kopi dan kelapa sawit cenderung memiliki korelasi negatif yang lebih kuat antara suhu tanah dan kelembaban. Sebaliknya, lahan terbuka dan lahan tebu menunjukkan korelasi yang lebih positif karena kondisi lingkungan yang lebih terbuka memungkinkan suhu dan kelembaban meningkat secara bersamaan. Terdapat 36 jenis vegetasi gulma yang tersebar bervariasi berdasarkan tanaman utama dan kondisi iklim mikro di tiap lahan. Gulma *Physalis angulata* mendominasi lahan kelapa sawit (12,95%) karena adaptasinya terhadap lingkungan yang lembab kelembaban (85,57%) dengan intensitas cahaya rendah (873,34 lux) akibat tutupan kanopi, serta suhu tanah stabil (24,68°C) yang mendukung pertumbuhan vegetatif optimal. *Euphorbia hirta* ditemukan sebagai gulma dominan di lahan kopi (9,28%) dan kakao (8,28%), yang memiliki suhu tanah relatif moderat (22,48°C di kopi, 24,32°C di kakao) serta kelembaban tinggi (72,07% di kopi, 80,19% di kakao), memungkinkan gulma ini tumbuh dengan baik dan memanfaatkan simbiosis dengan bakteri *Rhizobium* untuk meningkatkan ketersediaan nitrogen. Di lahan tebu, *Merrenia vitifolia* mendominasi (10,16%) karena kemampuannya tumbuh cepat dalam situasi lahan terbuka dengan intensitas cahaya tinggi (966,64 lux), kelembaban cukup tinggi (74,93%), dan suhu tanah hangat (25,62°C), yang meningkatkan laju fotosintesis dan mendukung invasi gulma ini. Sementara itu, *Praxelis clematidea* mendominasi lahan terbuka (16,87%) karena toleransinya terhadap kondisi kering dengan suhu tanah tertinggi (27,26°C) dan intensitas cahaya sangat tinggi (1001,6 lux), memungkinkan pertumbuhan optimal pada lingkungan dengan sinar matahari langsung dan kelembaban rendah (63,62%). Interaksi faktor iklim mikro, yaitu suhu tanah, kelembaban, dan intensitas cahaya, berpengaruh terhadap pertumbuhan dan persebaran gulma di berbagai lahan perkebunan. Hasil analisis koefisien komunitas menunjukkan kesamaan gulma tertinggi pada lahan kopi dan kakao (20,60%) akibat kesamaan mikroklimat, sedangkan kesamaan terendah ditemukan antara lahan sawit dan lahan terbuka (9,40%) akibat perbedaan kondisi lingkungan yang kontras. Penelitian ini menegaskan bahwa kondisi mikroklimat spesifik di setiap lahan mempengaruhi pola dominasi gulma, sehingga strategi pengelolaan gulma perlu disesuaikan dengan karakteristik mikroklimat masing-masing lahan.

Kata kunci: *Iklim mikro, vegetasi gulma, perkebunann*

CORRELATION BETWEEN MICROCLIMATE AND WEED VEGETATION COMPOSITION IN VARIOUS PLANTATION LANDS

by

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ABSTRACT

This study aimed to determine the correlation between microclimate and weed vegetation composition across various plantation lands at Politeknik Negeri Lampung. Research findings indicate that microclimates in more shaded areas, such as coffee and oil palm plantations, tend to exhibit a stronger negative correlation between soil temperature and humidity. Conversely, open land and sugarcane fields showed a more positive correlation, as their exposed environmental conditions allow both temperature and humidity to increase simultaneously. A total of 36 weed species were identified, with their distribution varying based on the main crop and the specific microclimatic conditions of each plot. *Physalis angulata* dominated oil palm plantations (12.95%), thriving due to its adaptation to humid environments (85.57% humidity) with low light intensity (873.34 lux) under dense canopy cover, and stable soil temperatures (24.68°C) that support optimal vegetative growth. *Euphorbia hirta* was the dominant weed in both coffee (9.28%) and cocoa (8.28%) plantations. These areas share relatively moderate soil temperatures (22.48°C in coffee, 24.32°C in cocoa) and high humidity (72.07% in coffee, 80.19% in cocoa), allowing *E. hirta* to grow well and potentially benefit from a symbiotic relationship with *Rhizobium* bacteria for enhanced nitrogen availability. In sugarcane fields, *Merremia vitifolia* dominated (10.16%). This is attributed to its rapid growth capability in open land conditions with high light intensity (966.64 lux), sufficiently high humidity (74.93%), and warm soil temperatures (25.62°C), which collectively boost its photosynthetic rate and support its invasive nature. Meanwhile, *Praxelis clematidea* dominated open land (16.87%) due to its tolerance to dry conditions, characterized by the highest soil temperatures (27.26°C) and very high light intensity (1001.6 lux), enabling optimal growth in direct sunlight and low humidity (63.62%). The interaction of microclimatic factors, specifically soil temperature, humidity, and light intensity, significantly influences weed growth and distribution across diverse plantation lands. Community coefficient analysis revealed the highest weed similarity between coffee and cocoa plantations (20.60%), attributable to their similar microclimates. In contrast, the lowest similarity was found between oil palm plantations and open land (9.40%) due to stark differences in environmental conditions. This research emphasizes that specific microclimatic conditions within each land type directly impact weed dominance patterns, underscoring the necessity of tailoring weed management strategies to the unique microclimatic characteristics of each area.

Keywords: *Microclimate, weed vegetation, plantations.*