

DIVERSITAS MESOFAUNA TANAH PADA LAHAN PERTANIAN SALAK DI  
DESA PURWOBINANGUN, PAKEM, SLEMAN, DAERAH ISTIMEWA  
YOGYAKARTA

Syavira Rizki Anjani

22/503864/BI/11110

Dosen Pembimbing 1: Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti,  
B.Sc., DAP&E. M.Biomed.

Dosen Pembimbing 2: Mukhlis Jamal Musa Holle, S.Si., M.Env.Sc., D.Phil.

INTISARI

Buah salak di desa Purwobinangun Pakem, Sleman, Daerah Istimewa Yogyakarta ini memiliki masa panen dengan jumlah besar, yang mana terjadi dalam 4 kali musiman dalam satu tahun. Walaupun demikian, setiap minggunya salak tetap dapat dipanen meskipun jumlah yang dihasilkan tidak sebanyak saat musim panen yang capaiannya bisa 1 ton dari hasil  $\pm 2$  Ha luas lahan pertanian salak. Lahan pertanian salak memiliki karakteristik serasah yang melimpah, kelembaban tinggi, serta naungan vegetasi yang membentuk iklim mikro khas, sehingga berpotensi mendukung keberadaan mesofauna tanah. Mesofauna tanah berperan penting sebagai pengurai bahan organik, serta indikator kesuburan dan kualitas tanah yang secara tidak langsung mempengaruhi pertumbuhan dan produktivitas tanaman salak. Penelitian ini bertujuan untuk mengetahui serta menjelaskan diversitas mesofauna tanah dan kelimpahan juga kerapatan pada lingkungan pertanian salak serta menjelaskan pengaruh dari parameter lingkungan terhadap mesofauna tanah di lahan pertanian salak yang diteliti. Metode penelitian yang digunakan pada penelitian ini menggunakan *Berlese Tullgren* yang memberikan hasil tangkapan mesofauna tanah dengan adanya perlakuan. Aktivitas dari mesofauna tanah yang telah diamati kemudian dianalisis. Hasil penelitian ini menunjukkan bahwa ditemukan total mesofauna tanah yaitu 46 individu, yang terbagi menjadi beberapa golongan dalam 21 genus dan 8 ordo, dengan dominasi ordo Diptera dan Coleoptera. Nilai yang didapatkan dari indeks keragaman Shannon-Wiener dihasilkan sebesar  $H' = 2,78$  dan tergolong keragaman sedang. Dari pengelompokan kelompok fungsionalnya, kelompok paling dominan adalah detritivora sebanyak 17 individu, selanjutnya kelompok herbivora 8 individu, predator 6 individu, larva akuatik 6 individu, parasit 3 individu, omnivora 1 individu dan *opportunistic* 5 individu. Hasil penelitian ini menunjukkan bahwa lokasi B memiliki kelimpahan mesofauna tertinggi yaitu 19 individu. Berdasarkan mikrohabitatnya, titik yang berbuah menghasilkan jumlah dan keragaman mesofauna paling tinggi yaitu 21 individu. Hasil pengukuran faktor lingkungan menunjukkan bahwa temperatur tanah berkisar antara 30–33°C, pH tanah yang didapatkan adalah netral ( $\pm 7$ ), nilai kelembaban tanah relatif tinggi dengan lokasi tertinggi pada lahan A, serta intensitas cahaya yang didapatkan menghasilkan nilai yang bervariasi antar lokasi. Analisis PCA yang dilakukan menunjukkan bahwa kondisi lingkungan antar lokasi relatif homogen, sedangkan hasil CCA mengindikasikan bahwa kelembaban tanah dan intensitas cahaya berperan dalam memengaruhi distribusi dan kelimpahan beberapa genus mesofauna tanah.

KATA KUNCI: salak, mesofauna, diversitas, lingkungan, tanah

RELATIONSHIP BETWEEN DIVERSITY OF SOIL MESOFAUNA ON  
SALAK FARMING LAND IN PURWOBINANGUN VILLAGE,  
PAKEM, SLEMAN, SPECIAL REGION OF YOGYAKARTA

Syavira Rizki Anjani

22/503864/BI/11110

Supervisor 1: Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc.,  
DAP&E. M.Biomed.

Supervisor 2: Mukhlis Jamal Musa Holle, S.Si., M.Env.Sc., D.Phil.

ABSTRACT

Snake fruit in Purwobinangun Pakem village, Sleman, Yogyakarta Special Region has a large harvest period, which occurs four times a year. However, every week the snake fruit can still be harvested, although the amount produced is not as much as during the harvest season, which can reach 1 ton from approximately 2 hectares of snake fruit farming land. Snake fruit farming land is characterized by abundant litter, high humidity, and shaded vegetation that form a unique microclimate, thus potentially supporting the existence of soil mesofauna. Soil mesofauna plays an important role as a decomposer of organic matter, as well as an indicator of soil fertility and quality that indirectly affects the growth and productivity of snake fruit plants. This study aims to determine and explain the diversity of soil mesofauna and its abundance and density in the snake fruit farming environment, as well as to explain the influence of environmental parameters on soil mesofauna in the studied snake fruit farming land. The research method used in this study uses the Berlese Tullgren method which provides the results of soil mesofauna captures with the presence of treatments. The activity of the observed soil mesofauna is then analyzed. The results of this study indicate that a total of 46 individuals of soil mesofauna were found, divided into several groups in 21 genera and 8 orders, with the dominance of the Diptera and Coleoptera orders. The value obtained from the Shannon–Wiener diversity index was  $H' = 2.78$  and was classified as moderate diversity. From the functional group grouping, the most dominant group was detritivores with 17 individuals, then the herbivore group with 8 individuals, predators with 6 individuals, aquatic larvae with 6 individuals, parasites with 3 individuals, omnivores with 1 individual and opportunistic with 5 individuals. The results of this study indicate that location B has the highest abundance of mesofauna with 19 individuals. Based on its microhabitat, the fruiting point produced the highest number and diversity of mesofauna with 21 individuals. The results of environmental factor measurements showed that soil temperature ranged from 30–33°C, the soil pH obtained was neutral ( $\pm 7$ ), the soil moisture value was relatively high with the highest location in land A, and the light intensity obtained produced varying values between locations. The PCA analysis conducted showed that environmental conditions between locations were relatively homogeneous, while the CCA results indicated that soil moisture and light intensity played a role in influencing the distribution and abundance of several soil mesofauna genera.

KEYWORDS: snake fruit, mesofauna, diversity, environment, soil