RINGKASAN

Universitas Jambi sebagai kampus yang mengusung konsep kampus hijau (*Green Campus*) menjalankan bentuk program pengelolaan lingkungan salah satunya mengkonsepkan Tempat Pengelolaan Sampah Terpadu (TPST) yang berlandaskan SNI 19-2454-2002 tentang Tata Cara Teknik Operasional Pengelolaan Sampah. Timbulan sampah yang dihasilkan oleh Universitas Jambi sebanyak 1023,239 Kg/hari dan komposisi sampah paling banyak yaitu sampah organik sebesar 835,7 kg/hari serta kondisi eksisting pada Tempat Pemrosesan Akhir (TPA) Universitas Jambi terutama dalam pengelolaan limbah padat organik belum dikelola secara baik, ini menjadi perhatian khusus. Pengelolaan sampah organik secara biologis mencakup beberapa metode salah satunya dengan penggunaan *Black Soldier Fly*. Dengan penggunaan *Black Soldier Fly* maka akan memangkas waktu lebih singkat dan hal ini lebih efisien digunakan terutama di lingkungan kampus.

Penelitian ini bertujuan untuk mengetahui jumlah timbulan sampah organik kantin di wilayah Kampus Mendalo Universitas Jambi, merancang sistem pengolahan sampah organik dengan menggunakan *Black Soldier Fly* serta mengetahui persentase potensi pengurangan sampah organik kantin di Kampus Mendalo Universitas Jambi setelah dilakukannya sistem pengolahan menggunakan *Black Soldier Fly*. Pendekatan dari penelitian ini adalah dengan metode eksperimental yaitu menghitung jumlah timbulan sampah organik kantin ke 16 sampel dari 40 populasi di Universitas Jambi dengan acuan SNI 19-3964-1994 serta melihat 1 siklus hidup *Black Soldier Fly* dengan memberikan pakan berupa sampah organik kantin. Data yang diperoleh dari eksperimen pengolahan sampah dengan *Black Soldier Fly* berupa durasi dalam mengolah, jumlah sampah yang direduksi dan hasil residu, perhitungan *Waste Reduction Index* (WRI) serta perhitungan *Efficiency of Conversion of Digested Feed* (ECD).

Hasil penelitian menunjukkan bahwa timbulan rata-rata sampah organik kantin di Universitas Jambi sebesar 6,4225 kg/hari. Siklus *Black Soldier Fly* dalam memproses pengolahan sampah selama 21 hari dengan rentang suhu 24-36 °C dan kelembapan pada rentang 55-97%. Adapun berat larva *Black Soldier Fly* sebanyak 289 gram mampu mengolah 77,5% sampah organik. Dari 4.325 gram sampah dapat mengolah 3.348 gram dan menghasilkan residu sebanyak 977 gram. Adapun nilai *Waste reduction index* (WRI) sebesar 5,16% serta nilai *Efficiency of Conversion of Digested Feed* (ECD) sebesar 9,15% maka tingkat palatabilitas atau kesukaan larva BSF terhadap variasi sampah yang diberikan dan bagusnya kualitas sampah yang diberikan sehingga teknik biokonversi oleh *Black Soldier Fly* dikatakan berhasil dan dapat diaplikasikan di Universitas Jambi. Adapun sistem pengelolaan sampah organik kantin yang dapat dilakukan yaitu pengumpulan sumber sampah - pengangkutan sampah - pengolahan sampah menggunakan *Black Soldier Fly*.

SUMMARY

Universitas Jambi, as a campus that promotes the green campus concept, implements various environmental management programs, one of which is designing an Integrated Waste Management Facility (TPST) based on SNI 19-2454-2002 concerning the Operational Technical Guidelines for Waste Management. The waste generated by Jambi University amounts to 1023.239 kg/day, with the largest composition being organic waste at 835.7 kg/day. The current condition at the Jambi University Final Disposal Site (TPA), especially in managing organic solid waste, has not been well managed, which is a particular concern. Biological management of organic waste includes several methods, one of which is the use of the Black Soldier Fly. Using the Black Soldier Fly can significantly reduce the processing time, making it more efficient, especially in a campus environment.

This study aims to determine the amount of organic waste generated by the canteen in the Mendalo Campus area of Jambi University, to design an organic waste management system using the Black Soldier Fly, and to identify the potential reduction percentage of organic canteen waste at Mendalo Campus after implementing the Black Soldier Fly system. The research approach is experimental, calculating the amount of organic waste generated by the canteen from 16 samples out of a population of 40 at Jambi University, based on SNI 19-3964-1994, and observing one life cycle of the Black Soldier Fly by providing canteen organic waste as feed. The data obtained from the waste processing experiments with the Black Soldier Fly include processing duration, the amount of waste reduced, and the residual output, as well as calculations of the Waste Reduction Index (WRI) and Efficiency of Conversion of Digested Feed (ECD).

The research results show that the average amount of organic waste generated by the canteen at Jambi University is 6.4225 kg/day. The Black Soldier Fly's waste processing cycle lasts 21 days, with a temperature range of 24-36 °C and humidity between 55-97%. The larvae, weighing 289 grams, can process 77.5% of the organic waste. Out of 4,325 grams of waste, 3,348 grams were processed, resulting in 977 grams of residue. With a Waste Reduction Index (WRI) of 5.16% and an Efficiency of Conversion of Digested Feed (ECD) of 9.15%, the high palatability of the BSF larvae for the given waste variation and the quality of the waste provided indicate that the bioconversion technique by the Black Soldier Fly is successful and applicable at Jambi University. The canteen organic waste management system that can be implemented includes waste source collection, waste transportation, and waste processing using the Black Soldier Fly.