

ABSTRAK

PENGARUH WAKTU RETENSI TERHADAP EFISIENSI *STEAMER* UNTUK STERILISASI BAGLOG JAMUR TIRAM

(Muhammad Apta Fayyadhilah, 2025: 84 Halaman, 37 Tabel, 26 Gambar)

Sterilisasi baglog jamur tiram merupakan proses penting dalam budidaya jamur tiram, karena media tanam yang tidak disterilisasi sempurna dapat menyisakan mikroba (jamur liar) yang menghambat pertumbuhan miselium dan menyebabkan kegagalan panen. Penelitian ini bertujuan untuk mengetahui pengaruh lama retensi sterilisasi (2, 4, dan 6 jam) terhadap efisiensi termal *steamer*, konsumsi bahan bakar spesifik (*specific fuel consumption*, SFC), dan keberhasilan pertumbuhan jamur tiram. Sterilisasi dilakukan menggunakan *steamer* berbahan bakar LPG. Setelah sterilisasi, baglog diuji kontaminasinya melalui uji fisik dan pengawasan pertumbuhan miselium jamur tiram. Efisiensi termal *steamer* dan SFC diukur untuk setiap waktu retensi. Hasil menunjukkan bahwa sterilisasi 6 jam menghasilkan pertumbuhan jamur terbaik (91,7% baglog tumbuh, total panen 4829 g) namun memiliki efisiensi termal terendah (13,08%) dan SFC tertinggi (3726 kJ/kg). Sterilisasi 2 jam paling efisien secara energi (efisiensi 16,37%, SFC 2689 kJ/kg) tetapi hanya 33,3% baglog yang tumbuh. Sterilisasi 4 jam memberikan kompromi optimal dengan 83,3% baglog tumbuh, efisiensi 14,18%, dan SFC 3246 kJ/kg. Kesimpulannya, semakin lama waktu retensi sterilisasi, kualitas sterilisasi meningkat sehingga pertumbuhan jamur lebih baik, namun efisiensi energi menurun.

Kata Kunci : *steamer*, baglog, jamur tiram, efisiensi termal, *specific fuel consumption*, waktu retensi

ABSTRACT

EFFECT OF RETENTION TIME ON STEAMER EFFICIENCY FOR STERILIZING OYSTER MUSHROOM BAGLOG

(Muhammad Apta Fayyadhilah, 2025: 84 Pages, 37 Tables, 26 Figures)

Sterilization of oyster mushroom substrate bags (baglogs) is a critical step in cultivation, as incomplete sterilization can leave contaminant microbes (wild fungi) that inhibit mycelial growth and cause crop failure. This study aimed to determine the effect of sterilization duration (2, 4, and 6 hours) on the steamer's thermal efficiency, specific fuel consumption (SFC), and the success rate of mushroom growth. Baglog sterilization was carried out using an LPG-fueled steamer. After sterilization, contamination in the baglogs was assessed through phisycal test, and observing mushroom mycelium growth. The steamer's thermal efficiency and SFC were measured for each retention time. Results showed that a 6-hour sterilization yielded the best mushroom growth (91.7% of baglogs producing mushrooms with a total yield of 4829 g) but also the lowest thermal efficiency (13.08%) and highest SFC (3726 kJ/kg). The 2-hour sterilization was the most energy-efficient (16.37% efficiency, 2689 kJ/kg SFC) but only 33.3% of baglogs produced mushrooms. A 4-hour sterilization period offered an optimal compromise, with 83.3% of baglogs growing mushrooms, 14.18% efficiency, and 3246 kJ/kg SFC. In conclusion, longer sterilization times improve sterilization effectiveness and mushroom yield, but energy efficiency decreases.

Keywords : *steamer, baglog, oyster mushroom, thermal efficiency, specific fuel consumption, retention time.*