

ABSTRAK

Limbah ikan bandeng banyak diperoleh dari sisa hasil produksi olahan ikan bandeng khas Sidoarjo. Limbah ikan bandeng bagian usus, hati, dan ginjal mengandung protein, karbohidrat, dan lemak. Ketersediaan yang melimpah dapat dimanfaatkan sebagai bahan media pertumbuhan bakteri, antara lain Agar Nutrien. Agar Nutrien mempunyai harga tinggi dan banyak diproduksi perusahaan asing, sehingga dapat memicu sulitnya ketersediaan pada laboratorium di pelayanan kesehatan domestik, khususnya pada daerah terdepan, terluar, dan tertinggal.

Penelitian ini bertujuan untuk menganalisis kemampuan limbah ikan bandeng sebagai media alternatif Agar Nutrien pada pertumbuhan *Escherichia coli* dan *Staphylococcus aureus*. Kemampuan tersebut dapat ditinjau dari karakteristik dan jumlah koloni bakteri.

Penelitian ini dilakukan di laboratorium bakteriologi jurusan Teknologi Laboratorium Medis, Politeknik Kesehatan Kementerian Kesehatan Surabaya pada bulan April 2022. Jenis penelitian ini adalah *True-experimental* dengan rancangan penelitian *post-test only control group design*. Berdasarkan hasil uji pendahuluan didapatkan variasi massa limbah ikan bandeng 7 gram, 7,5 gram, 8 gram, 8,5 gram, dan 9 gram. Inokulasi bakteri dilakukan dengan metode *spread plate*, pertumbuhan koloni bakteri dihitung dengan metode *Total Plate Count*, dan data dianalisis dengan uji Kruskal-Wallis.

Hasil penelitian ini menunjukkan bahwa terdapat pertumbuhan pada media limbah ikan bandeng berbagai variasi massa. Kemampuan limbah ikan bandeng terbaik sebagai media alternatif Agar Nutrien pada pertumbuhan bakteri terdapat pada variasi massa 9 gram, yakni jumlah rata-rata koloni *Escherichia coli* sebanyak 186×10^{13} CFU/mL dan koloni *Staphylococcus aureus* sebanyak 188×10^{13} CFU/mL.

Kata kunci: Limbah ikan bandeng, Agar Nutrien, *Escherichia coli*, *Staphylococcus aureus*

ABSTRACT

Waste milkfish got a lot from the residual processed milkfish production of Sidoarjo. The intestines, liver, and kidneys of waste milkfish contain protein, carbohydrates, and fat. The abundant availabilities were usable as a bacterial growth medium, including Nutrient Agar. Nutrient Agar has a high price and is produced by many foreign companies that can trigger a hard availability in laboratories of domestic healthcare, especially in frontier, outermost, and underdeveloped areas.

This research aims to analyze the ability of waste milkfish as an alternative medium for Nutrient Agar on the growth of Escherichia coli and Staphylococcus aureus. The ability has been observed by the characteristics and number of bacterial colonies.

The research was held in the bacteriology laboratory of the Medical Laboratory Technology Department, Health Polytechnic of Surabaya health ministry, on April 2022. The research type was True-experimental with a post-test-only control group design. Based on the preliminary test results, the waste milkfish mass variations were found in 7 grams, 7.5 grams, 8 grams, 8.5 grams, and 9 grams. Bacteria have been inoculated by the spread plate method, bacterial colony growth has been calculated by the Total Plate Count method, and data has been analyzed by the Kruskal-Wallis test.

The result of this research indicates the best ability of waste milkfish as an alternative medium for Nutrient Agar on bacterial growth was found in 9 grams mass variation. The average number of Escherichia coli colonies was 186×10^{13} CFU/mL and Staphylococcus aureus colonies was 188×10^{13} CFU/mL.

Keywords: *Waste milkfish, Nutrient Agar, Escherichia coli, Staphylococcus aureus*