

ABSTRAK

Bittern adalah air limbah cucian garam yang diperoleh pada proses pembuatan garam. Pemanfaatan *bittern* dilakukan dengan memanfaatkan bakteri *indigenous* pada *bittern*. Bakteri *indigenous* yang sering ditemukan pada *bittern* di antaranya *Bacillus* sp, dan *Pseudomonas* sp. Bakteri ini mampu merombak protein menjadi asam amino serta menghasilkan *bacteriosin* (peptida antimikroba) dan *imunostimulan*. Kemampuan bakteri tersebut telah terbukti efektif sebagai produk probiotik. Tujuan penelitian ini adalah untuk mengetahui uji fisiologis masing-masing isolat bakteri *indigenous bittern*, pembuatan probiotik ikan serta membandingkan nilai *Optical Density* dan *Total Plate Count* dari beberapa formulasi probiotik ikan pada media YEB tanpa dan dengan molase 3%. Penelitian ini dilaksanakan pada bulan September sampai Oktober 2022 di Laboratorium Biologi Laut, Laboratorium Pengelolaan Sumberdaya Perairan dan Laboratorium Lingkungan, Universitas Trunojoyo Madura. Hasil uji fisiologis KOH menunjukkan masing-masing isolat bakteri *indigenous bittern* merupakan bakteri Gram positif dan hasil uji katalase menunjukkan bahwa masing-masing isolat bakteri *indigenous bittern* terdapat enzim katalase. Pembuatan probiotik ikan dilakukan dengan klaterisasi nilai *optical density*. Berdasarkan hasil klaterisasi diperoleh formulasi 1 (BB9 + BB8 + BB7), formulasi 2 (BB6 + BB1 + BB4), dan formulasi 3 (BB3 + BB5 + BB2). Perbandingan nilai *optical density* pada formulasi probiotik ikan tanpa molase diperoleh nilai formulasi 1 (1.519); formulasi 2 (1.334); dan formulasi 3 (1.355). Sedangkan nilai *optical density* pada formulasi probiotik ikan dengan molase 3% diperoleh nilai formulasi 1 (0.784); formulasi 2 (1.185); dan formulasi 3 (0.688). Perbandingan nilai *total plate count* formulasi probiotik ikan tanpa molase nilai formulasi 1 diperoleh $2,08 \times 10^9$ CFU/ml, formulasi 2 diperoleh $9,07 \times 10^8$ CFU/ml dan formulasi 3 diperoleh $1,91 \times 10^8$ CFU/ml. Sedangkan nilai *total plate count* formulasi probiotik ikan dengan molase nilai formulasi 1 diperoleh $1,33 \times 10^{11}$ CFU/ml, formulasi 2 diperoleh $3,20 \times 10^{11}$ CFU/ml, dan formulasi 3 diperoleh $1,41 \times 10^{11}$ CFU/ml.

Kata Kunci: *Bittern*, Bakteri *Indigenous*, Probiotik Ikan, *Optical Density*, *Total Plate Count*

ABSTRACT

Bittern is salt-washing wastewater that is obtained from salt production. Bittern product is used by utilizing its indigenous bacteria. One way to use bittern is to isolate the indigenous bacteria. The most common indigenous bacteria found in bitterns are Bacillus sp. and Pseudomonas sp. This bacteria can convert protein into amino acids and produce bacteriocin (antimicrobial peptide) as an immune stimulant. A probiotic product made with this bacteria proved to be highly effective. In this research, the purpose was to determine physiological test of other indigenous bittern bacteria isolate, production of fish probiotics and compare Optical Density and Total Plate Count with those of a fish probiotic formulation from indigenous bacterial in YEB without and using molase 3%. This research was conducted from September to October 2022 at the Marine Biology Laboratory, Water Resources Management Laboratory, and Environmental Laboratory, University of Trunojoyo Madura. The results of the KOH physiological test showed that indigenous bittern bacteria isolate was a Gram-positive bacteria and the catalase test results showed that indigenous bittern bacteria isolate contained the catalase enzyme. Production of fish probiotics was carried out by clustering optical density values. Based on the results of clustering, was obtained formulation 1 (BB9 + BB8 + BB7), formulation 2 (BB6 + BB1 + BB4), and formulation 3 (BB3 + BB5 + BB2). The highest OD fish probiotic formulation without molasses including formulation 1 (1.519); formulation 2 (1.354); and formulation 2 (1,335). While the value of optical density in the formulation of probiotic fish with molasses 3% obtained value of a formulation 1 (0.784); formulation 2 (1.185); and formulation 3 (0.688). The value of the total plate count of the fish probiotic formulation without molasses in sequence obtained formulation 1 (4.15×10^8 CFU/ml), formulation 2 (3.56×10^8 CFU/ml) and formulation 3 (5.28×10^7 CFU/ml). While the total plate count value for fish probiotic formulations with molasses in sequence obtained formulation 1 (7.03×10^{10} CFU/ml), formulation 2 (6.08×10^{10} CFU/ml), and 1 (5.08×10^{10} CFU/ml).

Keyword: *Bittern, Indigenous bacterial, Probiotics fish, Optical Density, Total Plate Count*