

**DETEKSI KEBERADAAN MIKROBIOLOGI BAKTERI E.COLI
(ESCHERICHIA COLI) PADA PRODUK IKAN TUNA BEKU DENGAN
METODE PCR DI BADAN PENGENDALIAN DAN PENGAWASAN
MUTU HASIL KELAUTAN DAN PERIKANAN**

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ABSTRAK

Penelitian ini bertujuan untuk menerapkan metode Polymerase Chain Reaction (PCR) dalam mendeteksi keberadaan bakteri *Escherichia coli* pada produk ikan tuna beku (*Thunnus* sp.) serta mengevaluasi efektivitas metode ini dibandingkan dengan metode konvensional. Penelitian dilaksanakan di Badan Pengendalian dan Pengawasan Mutu Hasil Kelautan dan Perikanan (BPPMHKP) Denpasar dengan jenis penelitian deskriptif laboratorium. Sampel yang digunakan sebanyak tiga sampel ikan tuna beku yang diambil secara purposive sampling. Tahapan penelitian meliputi preparasi sampel, uji pendahuluan menggunakan media Lauryl Tryptose Broth (LTB), dan uji penegasan menggunakan metode PCR dengan target gen *lacZ* berukuran ± 876 bp. Hasil penelitian menunjukkan bahwa tidak ada sampel yang terdeteksi positif mengandung *Escherichia coli* berdasarkan hasil amplifikasi DNA yang menunjukkan pita gen target pada panjang 876 bp. Berdasarkan standar SNI 7388:2009 dan Peraturan BPOM (2020) yang menetapkan bahwa *E. coli* tidak boleh terdeteksi dalam 25 gram sampel, maka dua sampel tersebut belum memenuhi persyaratan keamanan pangan. Metode PCR terbukti lebih cepat, spesifik, dan sensitif dibandingkan metode konvensional, dengan waktu analisis ± 4 jam. Hasil penelitian ini menunjukkan bahwa penerapan metode PCR dapat menjadi alat pendukung penting dalam sistem jaminan mutu hasil perikanan di lingkungan BPPMHKP.

Kata kunci: *Escherichia coli*, PCR, ikan tuna beku, keamanan pangan, BPPMHKP

**MICROBIOLOGICAL DETECTION OF THE PRESENCE OF E.COLI
(ESCHERICHIA COLI) BACTERIA IN FROZEN TUNA PRODUCTS
USING THE PCR METHOD AT THE QUALITY CONTROL AND
SUPERVISION AGENCY FOR MARINE AND FISHERY PRODUCT**

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ABSTRACT

This study aims to apply the Polymerase Chain Reaction (PCR) method to detect the presence of Escherichia coli bacteria in frozen tuna (Thunnus sp.) products and evaluate the effectiveness of this method compared to conventional methods. The study was conducted at the Marine and Fisheries Product Quality Control and Supervision Agency (BPPMHKP) Denpasar with a descriptive laboratory study type. The samples used were three frozen tuna samples taken by purposive sampling. The research stages include sample preparation, preliminary testing using Lauryl Tryptose Broth (LTB) media, and confirmatory testing using the PCR method with a target lacZ gene measuring ± 876 bp. The results showed that no samples were detected positive for Escherichia coli based on DNA amplification results showing the target gene band at a length of 876 bp. Based on the SNI 7388:2009 standard and the BPOM Regulation (2020) which stipulates that E. coli should not be detected in 25 grams of sample, the two samples do not meet food safety requirements. The PCR method proved to be faster, more specific, and more sensitive than conventional methods, with an analysis time of approximately 4 hours. The results of this study indicate that the application of the PCR method can be an important supporting tool in the fishery product quality assurance system within the BPPMHKP.

Keywords: Escherichia coli, PCR, frozen tuna, food safety, BPPMHKP