

**ANALISIS KUALITAS AIR DANAU TOBA BERDASARKAN
KELIMPAHAN *Escherichia coli* DI KAWASAN PEMUKIMAN
PENDUDUK KECAMATAN MUARA KABUPATEN
TAPANULI UTARA SUMATERA UTARA**

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui kualitas air Danau Toba ditinjau dari kelimpahan *Escherichia coli* dan sifat fisika-kimia air di kawasan pemukiman penduduk Kecamatan Muara Kabupaten Tapanuli Utara Sumatera Utara. Penelitian ini dikategorikan sebagai penelitian deskriptif. Perhitungan kelimpahan bakteri *Escherichia coli* dan Total Coliform menggunakan metode MPN (Most Probable Number) dengan urutan sebagai berikut: Uji Perkiraan dan Uji Penegasan. Penentuan jumlah bakteri *Escherichia coli* dan Total Coliform berdasarkan nilai MPN per 100 ml air. Hasil penelitian ini menunjukkan bahwa berdasarkan hasil pemeriksaan *Escherichia coli* terhadap 6 sampel air Danau Toba di kawasan pemukiman penduduk Kecamatan Muara Kabupaten Tapanuli Utara yang telah diperiksa menunjukkan bahwa kisaran jumlah *Escherichia coli* berkisar antara 140 - >1600 jml/100 ml, sesuai dengan PermenKes No. 492/Menkes/Per/IV/2010 hasil pemeriksaan ini tidak berada pada kisaran yang diperbolehkan. Hasil penelitian ini juga menunjukkan bahwa suhu sampel air Danau Toba, yaitu 26,33°C: termasuk dalam kriteria mutu air kelas I, TSS sampel air Danau Toba, yaitu 72 mg/l: termasuk dalam kriteria mutu air kelas III, pH sampel air Danau Toba, yaitu 7,14: termasuk dalam kriteria mutu air kelas I, DO sampel air Danau Toba, yaitu 5,64 mg/l: termasuk dalam kriteria mutu air kelas III. Berdasarkan hasil pemeriksaan mikrobiologi, menunjukkan bahwa sampel air Danau Toba pada stasiun II dan III waktu pengambilan sampel pagi hari termasuk dalam kriteria mutu air kelas I dengan batas maksimum Total Coliform adalah 1000 jml/100 ml, sedangkan sampel air Danau Toba pada stasiun I waktu pengambilan sampel pagi dan sore hari, stasiun II dan III waktu pengambilan sampel sore hari termasuk dalam kriteria mutu air kelas II dengan batas maksimum Total Coliform 5000 jml/100 ml sesuai dengan baku mutu Peraturan Pemerintah No. 82 Tahun 2001.

Kata kunci: baku mutu, *Escherichia coli*, kualitas air, metode MPN

**ANALYSIS OF WATER QUALITY OF TOBA LAKE BASED ON
Escherichia coli ABUNDANCES IN SUBDISTRICT MUARA
DISTRICT NORTH TAPANULI NORTH SUMATERA**

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ABSTRACT

The aim of this study is to find out the water quality of Toba Lake by looking the abundance of *Escherichia coli* and the physical-chemical character of water in the residential area in Subdistrict Muara District North Tapanuli North Sumatera. This study is categorized as descriptive research. The computation of abundance of *Escherichia coli* and Total Coliform used method MPN (Most Probable Number) in series as follows: Presumptive Test and Confirmed Test. The determination of number of *Escherichia coli* and Total Coliform is based on the value of MPN in 100 ml water. The result of this study showed that from six samples of Toba Lake water in the residential area in Subdistrict Muara District North Tapanuli North Sumatera that has been examined that the range of the number of *Escherichia coli* ranged from 140 - > 1600/100 ml. It's not within the range of permissible appropriated the PermenKes No. 492/Menkes/Per/IV/2010, the result of these check is not in the range that is allowed. The result of this study also showed that the temperature of the water samples of Toba Lake, namely 26,33°C: included in the criteria class I water quality (raw water material drinking), TSS water samples of Toba Lake, namely 72 mg/l: included in the criteria class III water quality, pH of water samples of Lake Toba, namely 7.14: included in the criteria class I water quality, DO water samples of Toba Lake, namely 5.64 mg/l: included in the criteria class III water quality. Based on the results of microbiological examination, indicated that the water samples of Toba Lake on station II and III sampling time in the morning included in the criteria class I water quality with a maximum limit of Total Coliform is 1000/100 ml, while the water samples of Toba Lake on the station I sampling time in the morning and afternoon, station II and III sampling time in the afternoon included in the criteria class II water quality with a maximum limit of Total Coliform 5000/100 ml based on quality standards PP No. 82/2001.

Keywords: quality standards, *Escherichia coli*, water quality, method MPN