

## ABSTRAK

*Goutomo, Tri Bimo, 2021, Pengolahan Air Tanah Berbasis Treatment Bubble Aerator, Ferrolite, Resin Anion Kation, Reverse Osmosis, dan Sinar Ultraviolet, Tugas Akhir, Teknik Lingkungan, Fakultas Teknik Universitas PGRI Adi Buana Surabaya.*  
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Air sumur telah banyak tercemar rembesan *septic tank* dan logam berat, sehingga kualitas air sumur tidak memenuhi baku mutu yang dipersyaratkan pada Peraturan Menteri Kesehatan Nomor 32 Tahun 2017 tentang *Hygiene* Sanitasi. Tujuan dalam penelitian ini adalah untuk mengetahui penurunan kadar Besi (Fe), Mangan (Mn), dan *Fecal Coliform* menggunakan hasil *treatment Bubble Aerator, Ferrolite, Resin Anion, Resin Kation, Reverse Osmosis, dan Sinar UV*. Air baku yang digunakan adalah air sumur gali di Kelurahan Petemon, Surabaya. Dalam penelitian ini variabel yang digunakan adalah waktu kontak *Bubble Aerator* 30,45, dan 60 menit, serta ketinggian media *Ferrolite* 40, 45, dan 50 cm. Metode pengumpulan data dalam penelitian ini dilakukan selama 2 hari. Dari hasil *treatment Bubble Aerator* penurunan terbaik Fe dan Mn secara berurutan yaitu 0,994 mg/L (98,37%) dan 1,361 (99,32%) dengan waktu kontak 60 menit, sedangkan *Fecal Coliform* sebesar 285 CFU/100mL (57%) dengan waktu kontak 45 menit. Kemudian, dari hasil *treatment Bubble Aerator, Ferrolite, Resin Anion, Resin Kation, Reverse Osmosis, dan Sinar UV* penurunan terbaik Fe dan *Fecal Coliform* secara berurutan yaitu 1,01 mg/L (100%) dan 395 CFU/100mL (79%) dengan *Bubble Aerator* 45 menit – *Ferrolite* 50 cm, sedangkan Mn sebesar 1,37 mg/L (100%) dengan *Bubble Aerator* 60 menit – *Ferrolite* 50 cm.

**Kata Kunci:** Besi, *Bubble Aerator, Ferrolite, Fecal Coliform, Mangan*

## **ABSTRAC**

*Goutomo, Tri Bimo, 2021, Groundwater Treatment Based on Bubble Aerator Treatment, Ferrolite, Anion Cation Resin, Reverse Osmosis, and Ultraviolet Light, Final Project, Environmental Engineering, Faculty of Engineering, PGRI Adi Buana University Surabaya.*

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*Well water has been heavily polluted by septic tank seepage and heavy metals, so the quality of well water does not meet the quality standards required by the Minister of Health Regulation Number 32 of 2017 concerning Sanitary Hygiene. The purpose of this study was to determine the reduction in levels of Iron (Fe), Manganese (Mn), and Fecal Coliform using Bubble Aerator, Ferrolite, Anion Resin, Cation Resin, Reverse Osmosis, and UV light treatments. The raw water used is dug well water in Petemon Village, Surabaya. In this study, the variables used were Bubble Aerator contact times of 30,45, and 60 minutes, as well as the height of the Ferrolite medium of 40, 45, and 50 cm. The data collection method in this study was carried out for 2 days. From the results of the Bubble Aerator treatment, the best reductions in Fe and Mn respectively were 0.994 mg/L (98.37%) and 1.361 (99.32%) with a contact time of 60 minutes, while Fecal Coliform was 285 CFU/100mL (57%) with contact time 45 minutes. Then, from the results of the Bubble Aerator, Ferrolite, Anion Resin, Cation Resin, Reverse Osmosis, and UV light treatments the best reductions in Fe and Fecal Coliform respectively were 1.01 mg/L (100%) and 395 CFU/100mL (79%) with Bubble Aerator 45 minutes – Ferrolite 50 cm, while Mn is 1.37 mg/L (100%) with Bubble Aerator 60 minutes – Ferrolite 50 cm.*

**Keywords:** *Bubble Aerator, Ferrolite, Fecal Coliform, Iron, Manganese*