KEMAMPUAN SUSUNAN MEDIA FILTER A, FILTER B, DAN FILTER C TERHADAP KADAR BESI, MANGAN, DAN TDS DI TAMANAN BANGUNTAPAN BANTUL

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INTISARI

Latar Belakang : Air merupakan kebutuhan yang sangat berarti untuk keberlangsungan hidup manusia. Menurut Permenkes Nomor 2 Tahun 2023 kadar maksimum yang diperbolehkan ada di dalam air bersih untuk parameter besi (Fe) sebesar 0,2 mg/L, mangan (Mn) sebesar 0,1 mg/L, dan TDS sebesar <300 mg/L. Tingginya kandungan Besi, Mangan, dan TDS didalam air dapat menyebabkan air menjadi kekuningan, keruh dan berbau amis serta dapat membahayakan kesehatan manusia. Hasil pemeriksaan kualitas air bersih di Dusun Ngumbul RT 01, Tamanan, Banguntapan, Bantul menunjukan hasil kadar besi (Fe) 2,62 mg/L, mangan (Mn) 0,8 mg/L, dan TDS 316 mg/L. Hasil ini melebihi baku mutu sehingga diperlukan pengolahan air dengan filtrasi menggunakan media zeolit, ferrolite, manganese, dan pasir silika.

Tujuan : Penelitian ini bertujuan mengetahui pengaruh susunan media filter terhadap penurunan kadar besi (Fe), mangan (Mn), dan TDS pada air sumur di Tamanan, Banguntapan, Bantul.

Metode : Penelitian variasi susunan media filter dilakukan dengan metode *Quasi Experiment* yang dilakukan pada bulan Maret hingga April 2024.

Hasil : Filter A dengan susunan media zeolit, manganese, dan pasir silika mampu menurunkan kadar besi 54%, mangan 61%, dan TDS 44 %. Susunan Filter B dengan media ferrolite, zeolite, dan pasir silika mampu menurunkan kadar besi 78%, mangan 61%, dan TDS 47%. Dan Susunan Filter C dengan media pasir silika, ferrolite, dan manganese mampu menurunkan kadar besi 86%, mangan 50%, dan TDS 78%. Filter C dipilih sebagai filter yang disarankan karena dapat menurunkan kadar besi dan TDS secara maksimal dan dapat menurunkan kadar mangan.

Kata Kunci : Filtrasi, Zeolit, Ferrolite, Manganese, Pasir Silika, Besi (Fe), Mangan (Mn), dam TDS.

EFFECT OF USE FILTER A, FILTER B, AND FILTER C ON CONCERNS IRON, MANGANESE AND TDS LEVELS IN TAMANAN, BANGUNTAPAN, BANTUL

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ABSTRACT

Background: Water is a very important need for human survival. According to Permenkes Number 2 of 2023, the maximum levels permitted in clean water for iron (Fe) are 0.2 mg/L, manganese (Mn) are 0.1 mg/L, and TDS is <300 mg/L. The high content of Iron, Manganese and TDS in water can cause the water to become yellowish, cloudy and smell fishy and can endanger human health. The results of checking the quality of clean water in Ngumbul Hamlet RT 01, Tamanan, Banguntapan, Bantul showed iron (Fe) levels of 2.62 mg/L, manganese (Mn) 0.8 mg/L, and TDS 316 mg/L. This result exceeds the quality standard so water treatment with filtration using zeolite, ferrolite, manganese and silica sand media is required.

Objective: This study aims to determine the effect of the filter media arrangement on reducing levels of iron (Fe), manganese (Mn), and TDS in well water in Tamanan, Banguntapan, Bantul.

Method: Research on variations in filter media arrangement was carried out using the Quasi Experiment method which was carried out from March to April 2024.

Results: Filter A with a composition of zeolite, manganese and silica sand media was able to reduce iron levels by 54%, manganese by 61% and TDS by 44%. Filter B arrangement with ferrolite, zeolite and silica sand media was able to reduce iron levels by 78%, manganese by 61% and TDS by 47%. And the C Filter Arrangement with silica sand, ferrolite and manganese media is able to reduce iron levels by 86%, manganese by 50% and TDS by 78%. Filter C was chosen as the recommended filter because it can reduce iron and TDS levels maximally and can reduce manganese levels.

Keywords : Filtration, Zeolite, Ferrolite, Manganese, Silica Sand, Iron (Fe), Manganese (Mn), and TDS.