PENGOLAHAN AIR SUMUR GALI DENGAN FILTER RESIN DAN ZEOLIT UNTUK MENURUNKAN KADAR BESI (Fe) DAN MANGAN (Mn) DI DUSUN JAMBLANGAN, PURWOBINANGUN, PAKEM, SLEMAN

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INTISARI

Latar Belakang : Air merupakan salah satu kebutuhan yang sangat penting bagi kehidupan manusia serta makluk hidup lainnya. Hasil pemeriksaan kualitas air sumur gali di Dusun Jamblangan, Purwobinangun, Pakem, Sleman terdapat permasalahan seperti air yang memiliki warna keruh, berbau amis, dan terdapat minyak dipermukaan air sumur dengan hasil kadar Fe 3 mg/L dan Mn 0,3 mg/L. Hal tersebut melebihi baku mutu Permenkes RI No. 2 Tahun 2023 dengan kadar besi (Fe) maksimum 0,2 mg/L, sedangkan Mn maksimum 0,1 mg/L.

Tujuan : Mengetahui kadar Fe dan Mn setelah proses filtrasi menggunakan Filter resin dan zeolit di Dusun Jamblangan, Purwobinangun, Pakem, Sleman.

Metode : Penelitian ini menggunakan metode *Quasi Ekperiment* yang dilakukan pada bulan Mei 2025. Obyek air sumur gali di Dusun Jamblangan, Purwobinangun, Pakem, Sleman.

Hasil : Rata-rata penurunan kadar Fe setelah filtrasi 0,55 mg/L (39,76%) dari 1,36 mg/L menjadi 0,81 mg/L. Sedangkan rata-rata penurunan kadar Mn sebesar 0,14 mg/L (93,33%) dari 0,16 mg/L menjadi 0,02 mg/L.

Kesimpulan : Kombinasi resin dan zeolit belum efektif menurunkan kadar Fe, namun efektif menurunkan kadar Mn hingga memenuhi standar baku mutu sesuai dengan Permenkes RI No 2 Tahun 2023.

Kata kunci : Fe, Mn, Filtrasi, Resin, Zeolit, air sumur gali

WELL WATER TREATMENT WITH RESIN AND ZEOLITE FILTERS TO REDUCE IRON (Fe) AND MANGANESE (Mn) LEVELS IN JAMBLANGAN VILLAGE, PURWOBINANGUN, PAKEM, SLEMAN

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ABSTRACT

Background : Water is one of the most important needs for human life and other living things. The results of checking the quality of dug well water in Jamblangan Hamlet, Purwobinangun, Pakem, Sleman there are problems such as water that has a cloudy color, smells fishy, and there is oil on the surface of well water with the results of Fe levels of 3 mg/L and Mn 0.3 mg/L. This exceeds the quality standard of Permenkes RI No. 2 of 2023 with a maximum iron (Fe) level of 0.2 mg/L, while Mn is a maximum of 0.1 mg/L.

Objective : Knowing the levels of Fe and Mn after the filtration process using resin and zeolite filters in Jamblangan Hamlet, Purwobinangun, Pakem, Sleman.

Methods : This study used the Quasi-Experiment method which was conducted in May 2025. Object dug well water in Jamblangan Hamlet, Purwobinangun, Pakem, Sleman.

Results : The average decrease in Fe levels after filtration was 0.55 mg/L (39.76%) from 1.36 mg/L to 0.81 mg/L. While the average decrease in Mn levels was 0.14 mg/L (93.33%) from 0.16 mg/L to 0.02 mg/L.

Conclusion : The combination of resin and zeolite has not been effective in reducing Fe levels, but effectively reduces Mn levels to meet quality standards in accordance with Permenkes RI No. 2 of 2023.

Keywords : Fe, Mn, Filtration, Resin, Zeolite, dug well water