

APPLICATION OF PAZIA FILTERS TO REDUCE IRON (Fe) CONDITION OF DUG WELL IN PLUPUH HALMET, WUKIRSARI, CANGKRINGAN, SLEMAN

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ABSTRACT

Background: Mineral content in the form of iron (Fe) in water can cause unpleasant odors and cause yellow color on the walls of the tub and consumption over a long period of time can cause health problems. The results of the research study of iron (Fe) levels in dug well water in Plupuh Hamlet, Wukirsari, Cangkringan, Sleman, Yogyakarta amounted to 1.45 mg/L

Objective: Knowing the ability of the Pazia filter to reduce iron (Fe) levels.

Method: This research is an experimental study using the research design “Pre Test-Post Test Design” which will be analyzed descriptively. This research was conducted in May 2025. The object of research is dug well water with iron (Fe) content in Plupuh Hamlet, Wukirsari, Cangkringan, Sleman, Yogyakarta. The research was conducted using a Pazia filter. In the implementation of the study, 3 pre-test samples and 3 post-test samples were obtained.

Results: The results showed that the iron (Fe) level of dug well water before filtering using Pazia filter, the highest was 3.15 mg/L and the lowest iron (Fe) level was 1.28 mg/L. While the iron (Fe) level of dug well water after filtering with Pazia filter, the highest is 0.88 mg/L and the lowest iron (Fe) level is 0.34 mg/L. Of the 3 repetitions carried out, the difference in iron (Fe) levels before and after filtering with Pazia filters obtained the highest difference of 2.81 mg/L and the lowest difference was 0.75 mg/L. The average difference in iron (Fe) levels before and after filtering is 1.9 mg/L.

Conclusions: From this study it can be concluded that the Pazia filter is able to reduce iron (Fe) levels in dug well water with an average decrease of 76.6% from 3 repetitions with a discharge of 2 L/min.

Keywords: Iron, Fe, Filtration, Pazia

PENERAPAN FILTER PAZIA UNTUK MENURUNKAN KADAR BESI (Fe) AIR SUMUR GALI DI DUSUN PLUPUH, WUKIRSARI, CANGKRINGAN, SLEMAN

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ABSTRAK

Latar belakang : Kandungan mineral berupa besi (Fe) dalam air dapat menyebabkan bau yang kurang enak serta menyebabkan warna kuning pada dinding bak dan konsumsi dalam jangka waktu yang lama dapat menimbulkan masalah kesehatan. Hasil studi penelitian kadar besi (Fe) air sumur gali di Dusun Plupuh, Wukirsari, Cangkringan, Sleman, Yogyakarta sebesar 1,45 mg/L.

Tujuan : Mengetahui kemampuan filter Pazia dalam menurunkan kadar besi (Fe).

Metode: Penelitian ini merupakan penelitian eksperimental dengan menggunakan design penelitian "Pre Test-Post Test Design" yang akan dianalisis secara deskriptif. Penelitian ini dilaksanakan pada bulan Mei 2025. Objek penelitian adalah air sumur gali dengan kandungan besi (Fe) di Dusun Plupuh, Wukirsari, Cangkringan, Sleman, Yogyakarta. Penelitian dilakukan dengan menggunakan filter Pazia. Pada pelaksanaan penelitian didapatkan 3 sampel pre test dan 3 sampel post test.

Hasil: Hasil penelitian menunjukkan bahwa kadar besi (Fe) air sumur gali sebelum dilakukan Penyaringan menggunakan filter Pazia, paling tinggi adalah sebesar 3,15 mg/L dan kadar besi (Fe) paling rendah sebesar 1,28 mg/L. Sedangkan kadar besi (Fe) air sumur gali setelah dilakukan penyaringan dengan filter Pazia, paling tinggi adalah sebesar 0,88 mg/L dan kadar besi (Fe) paling rendah adalah 0,34 mg/L. Dari 3 kali pengulangan yang dilakukan, selisih kadar besi (Fe) sebelum dan sesudah dilakukan penyaringan dengan filter Pazia memperoleh hasil selisih paling tinggi adalah sebesar 2,81 mg/L dan selisih paling rendah adalah 0,75 mg/L. Rata-rata selisih kadar besi (Fe) sebelum dan setelah penyaringan yaitu 1,9 mg/L.

Kesimpulan: Dari penelitian ini dapat disimpulkan bahwa filter Pazia mampu menurunkan kadar besi (Fe) dalam air sumur gali dengan rata-rata penurunan sebesar 76,6% dari 3 kali pengulangan dengan debit 2 L/menit.

Kata kunci : Besi, Fe, Filtrasi, Pazia