EFEKTIVITAS PIPA FILTER DENGAN MEDIA KOMBINASI RESIN DAN PASIR DALAM MENURUNKAN KADAR BESI (FE) AIR SUMUR GALI BAPAK X DI DUSUN TAMBAK BAYAN, CATURTUNGGAL, DEPOK, SLEMAN, D.I.Y

Wulan Cendana Sari[1], Haryono[2], Lucky Herawati[3]
[1,2,3] Jurusan Kesehatan Lingkungan Poltekkes Kemenkes Yogyakarta
JL. Tata Bumi No. 3 Bayuraden, Gamping, Sleman, Yogyakarta, 55293
Email: wulancendanas@gmail.com

INTISARI

Latar Belakang : Air merupakan sumber daya yang sangat penting bagi makhluk hidup. Salah satu parameter kimia yang perlu diperhatikan dalam persyaratan kualitas air adalah kadar besi (Fe). Apabila konsentrasi besi (Fe) dalam air melebihi baku mutu dapat menyebabkan gangguan teknis, fisik, kesehatan dan ekonomis. Berdasarkan uji pendahuluan sumur gali milik Bapak X di Dusun Tambak Bayan, Caturtunggal, Depok, Sleman, D.I.Y. memiliki kadar besi (Fe) tinggi yaitu 2 mg/liter. Parameter tersebut belum memenuhi persyaratan kualitas air dalam Peraturan Menteri Kesehatan Republik Indonesia Nomor 32 Tahun 2017 tentang Standar Baku Mutu Kesehatan Lingkungan dan Persyaratan Kesehatan Air Untuk Keperluan Higiene Sanitasi, Kolam Renang, *Solus Per Aqua*, dan Pemandian Umum.
Tujuan : Diketahuinya keefektifan pipa filter dengan media kombinasi resin dan pasir dalam menurunan kadar besi (Fe) air sumur gali di Dusun Tambak Bayan, Caturtunggal, Depok, Sleman, D.I.Y.
Metode : Penelitian ini merupakan penelitian Experiment Semu (*Quasi Experiment*) dengan desain pre test – post test design. Penelitian ini dilaksanakan pada bulan Desember 2021 – Mei 2022. Obyek dalam penelitian ini adalah sumur gali milik Bapak X yang memiliki kadar besi (Fe) tinggi di Dusun Tambak Bayan, Caturtunggal, Depok, Sleman, D.I.Y. Penelitian dilakukan dengan menggunakan beberapa jenis media yaitu resin, pasir, kombinasi resin dan pasir.
Hasil : Hasil penelitian menunjukkan bahwa kadar besi (Fe) air sebelum dilakukan filtrasi paling tinggi sebesar 4,37 mg/L dan kadar besi (Fe) paling rendah sebesar 4,03 mg/L, sedangkan menggunakan media resin dapat menurunkan sebesar 3,07 mg/L atau 72,59 %, media pasir dapat menurunkan sebesar 2,47 mg/L atau 58,34 %, dan media kombinasi resin dan pasir dapat menurunkan sebesar 3,04 mg/L atau 71,84 %. Menurut hasil uji statistik *One Way Anova* (p *value* 0,000 < 0,05). Didapatkan penurunan kadar besi (Fe) air sumur gali yang paling efektif yaitu media resin.

Kata Kunci : Kadar besi (Fe), Filtrasi, Resin, Pasir

EFFECTIVENESS OF FILTER PIPE WITH RESIN AND SAND COMBINATION MEDIA IN REDUCING IRON (FE) LEVELS OF DAILY WELL WATER Mr. X IN DUSUN TAMBAK BAYAN, CATURTUNGGAL, DEPOK, SLEMAN, D.I.Y

Wulan Cendana Sari[1], Haryono[2], Lucky Herawati[3]
[1, 2, 3] Department Of Environmental Health Poltekkes Kemenkes Yogyakarta
JL. Tata Bumi No. 3 Bayuraden, Gamping, Sleman, Yogyakarta, 55293
Email: wulancendanas@gmail.com

ABSTRACT

Background : Water is a very important resource for living things. One of the chemical parameters that need to be considered in terms of water quality is iron (Fe) content. If the concentration of iron (Fe) in water exceeds the quality standard, it can cause technical, physical, health and economic problems. Based on preliminary excavation tests belonging to Mr. X in Dusun Tambak Bayan, Caturtunggal, Depok, Sleman, D.I.Y. has a high iron (Fe) content of 2 mg / liter. These parameters do not met the water requirements in the Regulation of the Minister of Health of the Republic of Indonesia Number 32 of 2017 concerning Environmental Health Quality Standards and Water Health Requirements for Sanitary Hygiene Purposes, Swimming Pools, *Solus Per Aqua*, and Public Baths.
Purpose : It is known the effectiveness of filter pipes with resin and sand combination media in reducing of iron (Fe) level of dug well water in dusun Tambak Bayan, Caturtunggal, Depok, Sleman, D.I.Y.
Methods: This research is a quasi-experimental research with a pre test – post test design. This research was carried out in December 2021 – May 2022. The object of this research is a well owned by Mr. X which has high iron (Fe) content at Dusun Tambak Bayan, Caturtunggal, Depok, Sleman, D.I.Y. The research was conducted using several types of media, namely resin, sand, a combination of resin and sand.
Results: The results showed that the highest level of iron (Fe) in water before filtration was 4.37 mg/L and the lowest level of iron (Fe) was 4.03 mg/L, while using resin media it could decrease by 3.07 mg/L. L or 72.59 %, sand media can decrease by 2.47 mg/L or 58.34 %, and resin and sand combination media can decrease by 3.04 mg/L or 71.84%. According to the results of the One Way Anova statistical test (p value 0.000 <0.05). The most effective reduction in iron (Fe) content of dug well water is resin media.

Keywords: Iron (Fe) content, Filtration, Resin, Sand