

INTISARI

Latar Belakang: Peranan air yang begitu penting mengharuskan kita untuk memperhatikan kuantitas dan kualitasnya. Berdasarkan Permenkes RI 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, disebutkan bahwa kadar kesadahan maksimum yang diperbolehkan yakni 500 mg/L.

Tujuan: Mengetahui perbedaan penurunan kesadahan air yang disaring dengan filter resin-arang aktif dan filter arang aktif-resin.

Metode: Jenis penelitian ini adalah penelitian Quasi experiment dengan desain penelitian *Pretest-Posttest design* dan perlakuan tiga kali pengulangan. Objek penelitian ini adalah sumur gali milik Bapak Esdi di Dusun Bibis, Bangunjiwo, Kasihan, Bantul dengan kadar kesadahan sebesar 569,6 mg/L. Variabel bebas pada penelitian ini adalah susunan media filtrasi yakni resin-arang aktif dan arang aktif-resin dengan ketebalan masing-masing 23 cm. Variabel terikat dalam penelitian ini yaitu kesadahan air pada air sumur gali.

Hasil: Dari penelitian kesadahan pre 569,6 mg/L, untuk jenis media arang aktif-resin post 1 124,6 mg/L, post 2 89 mg/L post 3 71,2 mg/L, rata-rata 94,9 mg/L dan presentase penurunan 83,3% dan untuk jenis media resin-arang aktif post 1 209,6 mg/L, post 2 219,6 mg/L, post 3 214,6 mg/L, rata-rata 214,6 mg/L dan presentase penurunan 62,3%.

Kesimpulan: Penyaringan kesadahan menggunakan resin - arang aktif dengan ketebalan masing-masing 23 cm mampu menurunkan kadar kesadahan rata-rata sebesar 83,3% pada debit aliran 7,5 liter/menit. Sedangkan untuk penyaringan kesadahan menggunakan arang aktif - resin dengan ketebalan masing-masing 23 cm mampu menurunkan kesadahan rata-rata sebesar 62,3% pada debit aliran 7,5 liter/menit.

Kata Kunci: Kesadahan, Resin, Arang Aktif

ABSTRACT

Background: The important role of water requires us to pay attention to its quantity and quality. Based on 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, Solus Swimming Pool Per Aqua and Public Baths, it is stated that the maximum allowable hardness level is 500 mg / L.

Purpose: Knowing the difference in the hardness reduction of filtered water with activated charcoal-resin filter and activated-resin charcoal filter.

Method: This type of research is a Quasi-experimental study with a Pretest-Posttest design research design and a three-time repetition treatment. The object of this study was a dug well owned by Mr. Esdi in Bibis, Bangunjiwo, Kasihan, Bantul with a hardness content of 569.6 mg/L. Free variables in this study were the arrangement of filtration media, namely activated charcoal and activated charcoal-resin with a thickness of 23 cm each. The bound variable in this study is water hardness in dug well water.

Results: From the pre hardness study of 569.6 mg/L, for activated charcoal media type- post 1 resin 124.6 mg/L, post 2 89 mg/L post 3 71.2 mg/L, average 94.9 mg/L and percentage decrease 83.3% and for resin-activated charcoal media type post 1 209.6 mg/L, post 2 219.6 mg/L, post 3 214.6 mg/L, averaged 214.6 mg/L and a percentage decrease of 62.3%.

Conclusion: Hardness screening using resins - activated charcoal with a thickness of 23 cm each is able to reduce the average hardness rate by 83.3% at a flow discharge of 7.5 liters/minute. As for hardness filtration using activated charcoal - resins with a thickness of 23 cm each are able to reduce the average hardness by 62.3% at a flow discharge of 7.5 liters/minute.

Keywords : Hardness, Resin, Activated Charcoal