PERBEDAAN PENURUNAN KESADAHAN DENGAN PENYARINGAN TIPE A DAN TIPE B

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INTISARI

Latar Belakang: Wilayah Dusun Jalakan, Kalurahan Triharjo, Kapanewon Pandak, Kab. Bantul, memiliki karakteristik perbukitan kapur. Hasil uji pendahuluan, sumber air bersih di lokasi mengandung kadar kesadahan sebesar 391 mg/L $CaCO_3$. Masyarakat mengeluhkan adanya timbulan kerak pada panci atau ketel dan kekhawatiran dampak kesehatan. Data Puskesmas Pandak II Tahun 2019, di wilayah Kalurahan Triharjo terdapat kasus gagal ginjal kronis sebanyak 19 jiwa. Maka perlu adanya penelitian lebih lanjut, guna memecahkan permasalahan yang ada di lokasi tersebut.

Tujuan: Diketahuinya kemampuan penyaringan antara tipe A dan tipe B terhadap penurunan kesadahan.

Metode Penelitian: Jenis dan desain penelitian ini quasi eksperimen *Pre-Post Test Design*. Objek penelitian yaitu distribusi PAM-Des pada salah satu rumah konsumen (Bapak Antok). Air distribusi PAM-Des disaring menggunakan penyaring Tipe A (karbon aktif 5 cm, resin kation 14,5 cm) dan Tipe B (karbon aktif 5 cm, zeolite 9,5 cm,resin kation 5 cm). Debit aliran air masuk ke dalam *housing filter* sebesar 500 mL/menit, waktu kontak 82,44 detik, kapasitas penyaringan 720 L/hari. Data penurunan kadar kesadahan dianalisis secara destriptif dan inferensial menggunakan uji statistik SPSS versi 17 meliputi: Normalitas, Homognitas, dan *Independent Samples Test dan atau Mann Whitney*.

Hasil: Penyaring Tipe A mampu menurunkan kadar kesadahan 72,93%, lebih tinggi dibanding Tipe B sebesar 67,58%. Berdasarkan uji *Independent Samples Test*, nilai *sig. (2-tailed)* equal variances assumed 0,013< 0,05 yang berarti "Ada perbedaan penurunan signifikan kesadahan antara penyaringan tipe A dan tipe B"

Kesimpulan: Menurut hasil uji statistik *Independent Samples Test*, dan data deskriptif penurunan kesadahan, kemampuan penyaring Tipe A lebih baik dibandingkan Tipe B.

Kata Kunci: Penyaringan, Kesadahan, Resin, Zeolite, Karbon Aktif

THE DIFFERENCES OF WATER HARDNESS DECREASE BETWEEN THE FILTERING OF TYPE A AND TYPE B

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ABSTRACT

Background: Area Dusun Jalakan, Triharjo District, Kapanewon Pandak, Kab. Bantul, has the characteristics of limestone hills. Preliminary test results, the source of clean water at the site contains 391 mg / L CaCO3 Hardness level. The public complained of scale deposits in the pot or kettle and concerns about health impacts. Data from Pandak II Health Center in 2019, in the District of Triharjo there were 19 cases of chronic kidney failure. Then the need for further research, in order to solve the problems that exist in these locations.

Purpose: Knowing the filtering ability between type A and type B to decrease hardness.

Method: The type and design of the study was quasi experimental Pre-Post Test Design. The object of research is the distribution of PAM-Des in one of the consumer's houses (Mr. Antok). PAM-Des distribution water is filtered using Type A filters (5 cm active carbon, 14.5 cm cation resin) and Type B (5 cm active carbon, 9.5 cm zeolite, 5 cm cation resin). The flow of water into the filter housing is 500 mL / minute, the contact time is 82.44 seconds, the filtering capacity is 720 L / day. Data on the level of hardness was analyzed descriptively and inferentially using SPSS version 17 statistical tests including: Normality, Homogenity, and Independent Samples Test or Mann Whitney.

Result: Type A filter is able to reduce the hardness level of 72.93%, higher than Type B by 67.58%. Based on the Independent Samples Test, the sig. (2-tailed) equal variances assumed is 0,013 < 0.05 which means "There is a significant decrease in hardness between filtering type A and type B"

Conclusion: According to the results of the Independent Samples Test statistical test, and descriptive data decreased hardness, the ability of Type A filters is better than Type B.

Keywords: Filtering, Hardness, Resin, Zeolite, Activated Carbon