

ABSTRAK

Nama : Trianisa Novalina
Program Studi : Farmasi
Judul : Analisis Kesadahan Total (CaCO_3), Kesadahan Kalsium (Ca^{2+}), Magnesium (Mg^{2+}) Pada Air Sumur Tanah di Daerah Jakarta Utara dan Penurunan Kesadahan Dengan Menggunakan Zeolit Adsorben

Kesadahan adalah suatu kondisi dimana air mengandung mineral CaCO_3 , Ca^{2+} dan Mg^{2+} yang tinggi. Tujuan penelitian ini adalah untuk menganalisis kadar kesadahan total, kalsium dan magnesium dalam air sumur tanah di daerah Cilincing, Sunter dan Pluit serta analisis penurunan nilai kesadahan total dengan menggunakan mineral adsorben yakni zeolit. Metode yang digunakan yaitu titrasi kompleksometri. Pengujian dilaksanakan di Laboratorium Kimia Farmasi ISTN Jakarta. Hasil penelitian menunjukkan bahwa air sumur tanah pada daerah Cilincing, Sunter dan Pluit memiliki kadar kesadahan total, kalsium, dan magnesium yang melebihi batas persyaratan. Prosentase nilai penurunan kadar kesadahan total, kalsium dan magnesium pada daerah cilincing mencapai 56.80%, 52.72%, 47.06%. Prosentase nilai penurunan kadar kesadahan total, kalsium, dan magnesium pada daerah sunter mencapai 57.19%, 50.99%, 34.05%, dan prosentase nilai penurunan kadar kesadahan total, kalsium, magnesium pada daerah pluit mencapai 58.18%, 53.69%, 35.94%. Penggunaan zeolit sebagai adsorben untuk menurunkan kadar kesadahan total air sumur tanah terbukti efektif untuk menurunkan kadar kesadahan total, kalsium dan magnesium.

Kata kunci:

Air Sumur Tanah, Analisis Kesadahan Total, Zeolit Adsorben, Kompleksometri

ABSTRACT

Name : Trianisa Novalina
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Title : Analysis of Total Hardness (CaCO_3), Calcium Hardness (Ca^{2+}), Magnesium (Mg^{2+}) In Well Water in North Jakarta and The Decreased of Hardness Using the Adsorbent Zeolite.

Hardness is a condition where water contains high calcium and magnesium minerals. The purpose of this study is to analyze the levels of total hardness, calcium and magnesium contained inside the ground water wells of residents living in the Cilincing, Sunter, Pluit and analyze the decrease in total hardness levels using an adsorbent mineral zeolite. The method inside the experiment is complexometric titration method. Testing was carried out at the ISTN Jakarta Pharmaceutical Chemistry Laboratory. The results of the study were that ground well water in the Cilincing, Sunter and Pluit area had total hardness and calcium levels which exceeded the limits. The percentage of the decrease in the level of total hardness calcium and magnesium in the Cilincing region reached 56.80%, 52.72%, 47.06%. The percentage of the decrease in the level of total hardness calcium and magnesium in the Sunter region reached 57.19%, 50.99%, 34.05% and the percentage of the decrease in the level of total hardness calcium and magnesium in the Pluit region reached 58.18%, 53.69%, 35.94%. Zeolite used as an adsorbent to reduce the total hardness level of ground well water proved to be effective with a considerable decrease in the total hardness levels, calcium and magnesium at the initial value set

Keyword:

Ground Well Water, Total Hardness Analyze, Zeolite Adsorbent, Complexometric