

THE EFFECT OF VARIATION OF THICKNESS OF CHICKEN EGG SHELL MEDIA ON DECREASE LEVELS OF IRON (Fe) AND MANGANESE (Mn) IN DUG WELL WATER WITH FILTRATION SYSTEM

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ABSTRACT

Background : The well water of one of the residents in Sawit Hamlet, Panggungharjo, Sewon, Bantul, DIY is physically not clear in color, has sediment in the piping system, and when used for washing clothes and equipment will change color to brownish yellow. Based on the preliminary test, the levels of iron (Fe) were 2 mg/L and manganese (Mn) was 0.7 mg/L, these results were quite high. It is necessary to conduct research tests on broiler eggshell filter media with various thickness variations in reducing iron (Fe) and manganese (Mn) levels in well water with a filtration system.

Objective : To determine the effect of broiler egg shell filter media with various thickness variations on the reduction of iron (Fe) and manganese (Mn) levels in dug well water.

Methods: The type of research is quasi-experimental with pretest-posttest with control group. Analysis of the effect of the thickness of the filter media using the Anova test (Sig < 0.05) and continued with the Post Hoc Tests to conclude there is a significant difference between the thickness of the eggshell filter media of 0 cm, 40 cm, 50 cm, and 60 cm on the decrease in iron content (Fe) and manganese (Mn) in dug well water.

Results : The most effective broiler egg shell filter media is 60 cm thick with a flow rate of 500 ml per minute in reducing iron (Fe) and manganese (Mn) levels in dug well water.

Conclusion : There is an effect of broiler egg shell filter media on the reduction of iron (Fe) and manganese (Mn) levels in drilled well water.

Keywords: Egg shells, iron content, manganese content, dug well water

PENGARUH VARIASI KETEBALAN MEDIA CANGKANG TELUR AYAM RAS TERHADAP PENURUNAN KADAR BESI (Fe) DAN MANGAN (Mn) AIR SUMUR GALI DENGAN SISTEM FILTRASI

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INTI SARI

Latar Belakang : Air sumur salah satu warga yang berada di Dusun Sawit, Panggungharjo, Sewon, Bantul, DIY dilihat kondisi secara fisik berwarna kurang jernih, adanya endapan di sistem perpipaan, dan apabila digunakan untuk mencuci pakaian dan peralatan akan mengalami perubahan warna menjadi kuning kecoklatan. Berdasarkan uji pendahuluan didapatkan kadar besi (Fe) sebesar 2 mg/L dan mangan (Mn) sebesar 0,7 mg/L, hasil tersebut termasuk cukup tinggi. Perlu dilakukan uji penelitian media filter cangkang telur ayam ras dengan berbagai variasi ketebalan dalam menurunkan kadar besi (Fe) dan mangan (Mn) air sumur dengan sistem fitrasi.

Tujuan : Mengetahui pengaruh media filter cangkang telur ayam ras dengan berbagai variasi ketebalan terhadap penurunan kadar besi (Fe) dan mangan (Mn) dalam air sumur gali.

Metode : Jenis penelitian yaitu eksperimen semu dengan *pretest-posttest with control group*. Analisis pengaruh ketebalan media filter menggunakan uji *Anova* ($Sig < 0.05$) dan dilanjut Uji *Post Hoc Tests* untuk menyimpulkan ada perbedaan yang bermakna antara ketebalan media filter cangkang telur ayam ras 0 cm, 40 cm, 50 cm, dan 60 cm terhadap penurunan kadar besi (Fe) dan mangan (Mn) dalam air sumur gali.

Hasil : Media filter cangkang telur ayam ras yang paling efektif yaitu ketebalan 60 cm dengan debit 500 ml per menit dalam menurunkan kadar besi (Fe) dan mangan (Mn) air sumur gali.

Kesimpulan : Ada pengaruh media filter cangkang telur ayam ras terhadap penurunan kadar besi (Fe) dan mangan (Mn) dalam air sumur gali.

Kata Kunci : Cangkang telur ayam ras, kadar besi, kadar mangan, air sumur gali