PENGARUH KECEPATAN PENGADUKAN DAN BERAT ADSORBEN AMPAS TAHU TERHADAP PENURUNAN KADAR LOGAM BESI (Fe) PADA AIR LINDI

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ABSTRAK

Latar Belakang:Air lindi adalah cairan bersifat toksik yang terbentuk dari timbunan sampah dengan kandungan organiknya yang tinggi dan juga unsur logam. Salah satu unsur logam yang terkandung dalam air lindi adalah logam besi (Fe). Pengolahan air lindi dapat dilakukan dengan proses adsorpsi. Bahan penyerap yang dapat digunakan adalah ampas tahu. Penelitian ini bertujuan untuk mengetahui pengaruh kecepatan pengadukan dan berat adsorben ampas tahu terhadap penurunan kadar logam besi (Fe) pada air lindi**. Metode**: Jenis penelitian yang digunakan yaitu *True Experiment* (Eksperimen murni) dengan *Factorial Design* (Rancangan Faktorial). Obyek penelitian yaitu air lindi TPA Kalikondang Demak. Variabel bebas dalam penelitian ini kecepatan pengadukan (70 rpm, 90 rpm dan 110 rpm) dan berat adsoben (800 mg, 1000 mg dan 1200 mg). Variabel terikatnya adalah penurunan kadar besi. Dilakukan 3 kali pengulangan sehingga jumlah pengamatan 30 sampel yang terdiri dari 27 sampel perlakuan dan 3 sampel kontrol. Hasil pengamatan dianalisis menggunakan uji statistik *Two Way Anova* dan uji lanjutan *Post Hoc LSD*. **Hasil**: Rata- rata kadar besi sebelum perlakuan adalah 6,603 mg/l sedangkan rata-rata kadar besi sesudah perlakuan sebesar 2,426 mg/l. Rata-rata penurunan kadar logam besi sebesar 3,766 mg/l (57,04%). Ada pengaruh kecepatan pengadukan (*p-value* = 0,034) dan berat adsorben (*p-value* = 0,001) terhadap penurunan kadar besi**.** Tidak ada pengaruh interaksi antara kecepatan pengadukan dan berat adsorben terhadap penurunan kadar besi (*p-value* = 0,991). **Simpulan**: Kondisi optimum adsorben ampas tahu dalam mengadsorpsi logam besi pada air lindi yaitu pada kecepatan pengadukan 70 rpm dengan berat adsorben 1200 mg.
Kata kunci: Adsorpsi, ampas tahu, besi (Fe), air lindi

THE INFLUENCE OF STIRRING SPEED AND THE ABSORBDEN WEIGHT OF TOFU WASTE TO THE IMPACT ON THE REDUCTION OF IRON (Fe) METAL LEVELS ON LEACHATE

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ABSTRACT

Background: Leachate is a toxic liquid formed from landfill with high organic content and also metal elements. One of the metal elements contained in leachate is iron (Fe) metal. Leachate treatment can be done by the adsorption process. The absorbent material that can be used is tofu. The aim of this study was to The Influence Of Stirring Speed And The Absorbden Weight Of Tofu Waste To The Impact On The Reduction Of Iron (Fe) Metal Levels On Leachate. **Method**: The type of research used is True Experiment with Factorial Design. The object of the study is the leachate of the Kalikondang Demak landfill. The independent variable in this study was the stirring speed (70 rpm, 90 rpm and 110 rpm) and the weight of absorbden (800 mg, 1000 mg and 1200 mg). The dependent variable is the decrease in iron content. Three repetitions were carried out so that the number of observations was 30 samples consisting of 27 treatment samples and 3 control samples. Observations were analyzed using the Two Way Anova statistical test and LSD Post Hoc follow-up test. **Results**: The average of the iron content before treatment was 6.603 mg/l while the average iron content after treatment was 2.426 mg/l. The decreasing average in iron metal content was 3.766 mg / l (57.04%). There is an effect of stirring speed (p-value = 0.034) and weight of adsorbent (p-value = 0.001) to the decreasing iron content. There was no interaction effect between stirring speed and weight of adsorbent on decreasing iron content (p-value = 0.991). **Conclusion**: The optimum condition of tofu waste adsorbent in adsorbing iron metal in leachate water is at a stirring speed of 70 rpm with adsorbent weight of 1200 mg.
Keywords: Adsorption, tofu waste, iron (Fe), leachate.