

Penurunan Kadar Ion Cu (II) Dalam Air Menggunakan Serbuk Cangkang Telur Puyuh

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ABSTRAK

Tembaga (Cu) diperlukan oleh tubuh manusia, dalam mengatur homeostasis. Namun, dalam dosis yang berlebihan dalam tubuh sangat berbahaya dan bersifat toksik. Ion tembaga dapat diadsorpsi dengan menggunakan serbuk cangkang telur puyuh karena memiliki kandungan CaCO_3 dan mengandung 7.000-17.000 pori-pori. Tujuan penelitian ini adalah untuk mengetahui pengaruh variasi konsentrasi cangkang telur puyuh dengan variasi lama perendaman terhadap penurunan ion Cu (II) dalam air. Penelitian dilakukan di Laboratorium Kimia FIKKES UNIMUS yang dilaksanakan pada bulan April 2018. Objek penelitian adalah larutan Cu (II) dengan konsentrasi 50 ppm kemudian dilakukan perendaman menggunakan serbuk cangkang telur puyuh dengan variasi konsentrasi 6, 7 dan 8% b/v dengan variasi lama perendaman 2, 3, dan 4 jam. Hasil penelitian didapatkan panjang gelombang optimum ialah 470 nm dengan waktu kestabilan 10 menit dengan kadar Cu (II) awal 54,02 ppm. Penurunan kadar Cu (II) yang signifikan pada konsentrasi 8% b/v selama 2, 3 dan 4 jam dimana hasilnya berturut-turut yaitu 79,59%; 80,34%; 81,15. Uji statistik Two Way Anova menunjukkan p value $0,000 < 0,05$ sehingga dapat disimpulkan bahwa ada pengaruh variasi konsentrasi cangkang telur puyuh dengan variasi lama perendaman terhadap penurunan ion Cu (II) dalam air.

Kata kunci : Ion Cu (II), Serbuk Cangkang Telur Puyuh

The Decrease in Cu (II) Ion Content in Water by Using Quail Eggshell Powder

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ABSTRACT

Copper (Cu) was needed by the human body to regulate homeostasis. However, it was very dangerous and toxic for the body if used in excessive doses. The copper ion could be adsorbed by using quail eggshell powder because it contained CaCO_3 and 7,000-17,000 pores. This study aimed at determining the effect of variations in quail eggshell concentration with variations in soaking time to the decrease in Cu (II) ion in water. It was conducted at the Chemical Laboratory Faculty of Nursing and Health Sciences University of Muhammadiyah Semarang (FIKKES UNIMUS) in April 2018. The object of the study was Cu (II) solution with the concentration of 50 ppm. The Cu (II) solution was then soaked by using quail eggshell powder with the variation of concentrations of 6, 7 and 8% b/v and the variations of soaking time for 2, 3 and 4 hours. From the result of the study, it was obtained that the optimum wavelength was 470 nm with 10 minutes stability time and the initial Cu (II) level of 54,02 ppm. The significant decrease in Cu (II) content was at the concentration of 8% b/v soaked for 2, 3 and 4 hours with the result of 79.59%; 80.34%; 81.15 respectively. The Two Way Anova statistical test showed that the p-value was 0,000 <0,05. Therefore, it could be concluded that there was the effect of variations in quail eggshell concentration with variations in soaking time to the decrease in Cu (II) ions in water.

Keyword: Cu (II) Ion, Quail Eggshell Powder