PENURUNAN KADAR ION MANGAN (Mn^{2+}) DALAM AIR MENGGUNAKAN ARANG TONGKOL JAGUNG

Cahyaning Abdullah[1], Endang Tri Wahyuni Maharani[2],Yusrin[2]

1. Program Studi DIV Analis Kesehatan Fakultas Ilmu Keperawatan dan Kesehatan Universitas Muhammadiyah Semarang.
2. Laboratorium Kimia Fakultas Ilmu Keperawatan dan Kesehatan Universitas Muhammadiyah Semarang.
3. Fakultas Matematika dan Ilmu pengetahuan Alam Universitas Muhammadiyah Semarang.

ABSTRAK

Air merupakan kebutuhan sangat vital bagi makhluk hidup, air yang dibutuhkan adalah air bersih dan *hygiene* serta memenuhi syarat kesehatan. Salah satu sumber air bersih tercemar yang dimanfaatkan oleh manusia adalah air tanah. Kendala yang paling sering ditemui menggunakan air tanah adalah masalah kandungan logam berat salah satunya mangan (Mn^{2+}). Bila mangan (Mn^{2+}) masuk ke dalam tubuh menyebabkan gangguan penyerapan zat besi sehingga menyebabkan penderita mengalami anemia.Tujuan penelitian ini untuk mengetahui penurunan kadar mangan (Mn^{2+}) dalam air menggunakan arang tongkol jagung dengan variasi konsentrasi dan waktu perendaman. Objek penelitian adalah larutan mangan (Mn^{2+}) dengan konsentrasi 50 ppm, kemudian dilakukan penurunan kadar ion mangan (Mn^{2+}) dalam air menggunakan arang tongkol jagung dengan variasi konsentrasi (8% b/v, 10% b/v, dan 12% b/v) dan lama perendaman (24 jam, 36 jam, dan 48 jam), selanjutnya dilakukan penetapan kadar ion mangan (Mn^{2+}) awal setelah itu masing-masing sampel dilakukan pengulangan sebanyak 3 kali, Penelitian penurunan kadar mangan (Mn^{2+}) ditetapkan dengan metode spektrofotometri. Hasil penelitian adalah panjang gelombang optimum untuk penetapan awal dan akhir formalin pada 252 nm dan waktu kestabilan optimum pada 15 menit. Kadar formalin awal pada mangan (Mn^{2+}) adalah 49,29 ppm, penetapan kadar ion mangan (Mn^{2+}) setelah perendaman dengan arang tongko jagung Konsentrasi tertinggi adalah 12% dan waktu perendaman 48 jam dapat menurunkan kadar ion mangan (Mn^{2+}) sebanyak 96,34%.

Kata Kunci ***: Penurunan kadar mangan (Mn^{2+}), Arang tongkol jagung.***

DECREASING OF MANGANESE ION (Mn $^{2+}$) IN WATER LEVELS USING CORN COB CHARCOAL

Cahyaning Abdulah[1], Endang Tri Wahyuni Maharani[2],Yusrin[2]

1. D-IV Study Program Medical Technology Laboratory Faculty of Nursing and Health Muhammadiyah University Semarang.
2. Chemical Laboratory Faculty of Nursing and Health, University of Muhammadiyah Semarang.
3. Faculty of Mathematics and Natural Sciences University of Muhammadiyah Semarang.

ABSTRACK

Water is a vital requirement for living things, the water needed is clean water and hygiene and meets health requirements. One source of polluted clean water that is used by humans is ground water. The most common obstacle encountered using groundwater is the problem of heavy metal content, one of which is manganese (Mn $^{2+}$). When manganese (Mn $^{2+)}$ into the body causing interference with iron absorption, cause the patient to suffer from anemia.. The purpose of this study was to determine the decrease in manganese (MN $^{2+}$) level water using corn cobs charcoal with variation in concetration and soaking time. The object of the study was a solution of manganese (Mn $^{2+}$) with a concentration of 50 ppm, then a decrease in the level of manganese ion (Mn $^{2+}$) in water using corn cobs charcoal with varying concentrations (8% b / v, 10% b / v, and 12 % b / v) and soaking time (24 hours, 36 hours, and 48 hours), then performed the assay of manganese ions (Mn $^{2+}$) beginning after that each sample be repeated 3 times, research decreased levels of manganese (Mn $^{2+}$) is determined by spectrophotometric method. The results of this research were optimum wavelength for the determination of the initial and final levels of manganese (Mn $^{2+}$) at 252 nm and the optimum stability time at 15 minutes. The results of this research were optimum wavelength for the determination of the initial and final levels of manganese (Mn $^{2+}$) at 252 nm and the optimum stability time at 15 minutes. Levels of manganese (Mn $^{2+}$) earlier was 49.29 ppm, the assay of manganese ions (Mn $^{2+}$) after soaking the corn cob charcoal highest concentration was 12% and the soaking time of 48 hours can reduce levels of manganese ions (Mn $^{2+)}$ of 96.34%.

Keywords: *Decreased levels of manganese (Mn $^{2+}$), corn cob charcoal*