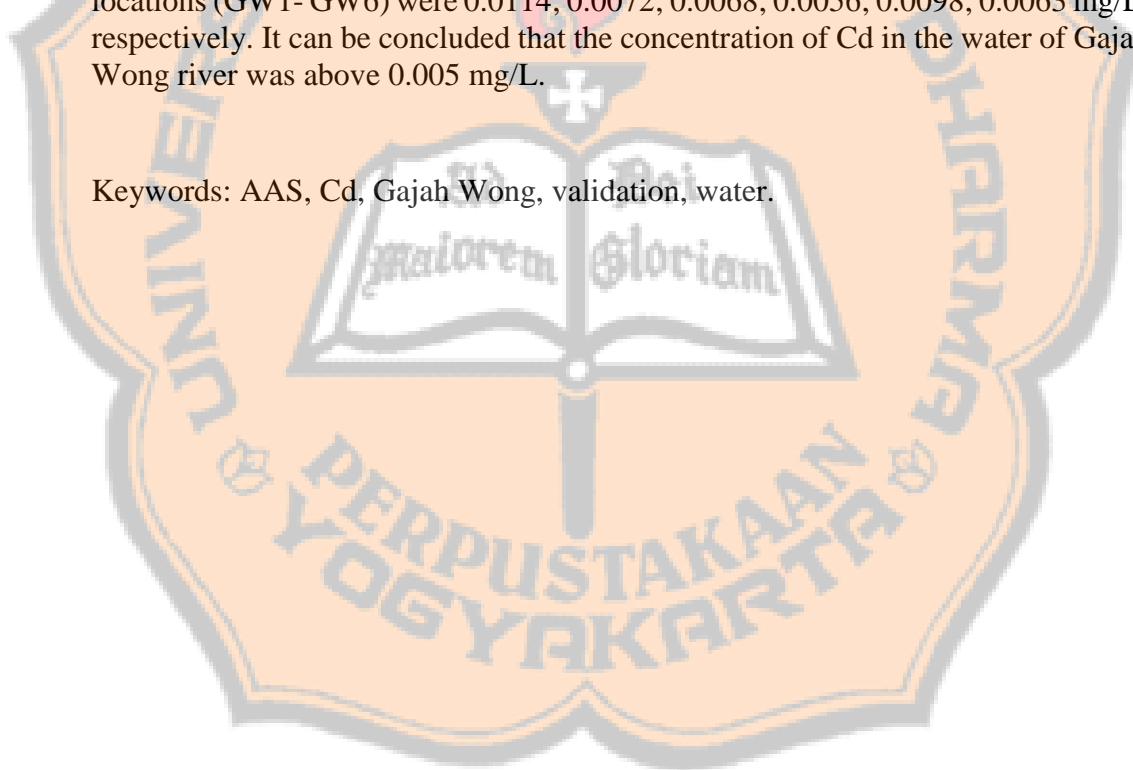


ABSTRACT

Water pollution can be defined as the inclusion of pollutants such as living creatures, substances, energy and/or other components into the water by human activities. It causes the decrease of the water quality. The increasing of the population density and the growing of various industries in urban area of Yogyakarta could become the factors related to the water pollution phenomena. Gajah Wong, one of the rivers in Yogyakarta, is estimated to be polluted by heavy metals of cadmium (Cd). This research aims to validate the method of Atomic Absorption Spectrophotometry (AAS) and determine the levels of Cd in the Gajah Wong river water. Validity parameter observed included linearity, Limit of Detection (LoD), Limit of Quantitation (LoQ), accuracy and precision. The results showed the method had a good linearity with a correlation coefficient of 0.9979, LoD 0.0004 mg/L, LoQ 0.0013 mg/L, accuracy in the range 60- 115 % and precision below 21. The level of heavy metal Cd in Gajah Wong river water in six locations (GW1- GW6) were 0.0114; 0.0072; 0.0068; 0.0056; 0.0098; 0.0063 mg/L, respectively. It can be concluded that the concentration of Cd in the water of Gajah Wong river was above 0.005 mg/L.

Keywords: AAS, Cd, Gajah Wong, validation, water.



INTISARI

Pencemaran air adalah masuknya polutan seperti makhluk hidup, zat, energi dan/atau komponen lain ke dalam air oleh kegiatan manusia. Hal ini menyebabkan kualitas air menurun. Meningkatnya populasi penduduk dan pertumbuhan berbagai industri di daerah perkotaan Yogyakarta menyebabkan terjadinya fenomena pencemaran air. Gajah Wong merupakan salah satu sungai di Yogyakarta yang diperkirakan mengalami pencemaran oleh logam berat kadmium (Cd). Penelitian ini bertujuan untuk validasi metode Spektrofotometri Serapan Atom (SSA) dan menetapkan kadar Cd pada air Sungai Gajah Wong. Parameter validasi yang harus terpenuhi mencakup linearitas, LoD, LoQ, akurasi dan presisi. Hasil penelitian menunjukkan metode mempunyai linearitas yang baik dengan koefisien korelasi 0,9979; LoD 0,0004 mg/L, dan LoQ 0,0013 mg/L, akurasi berada pada rentang 60-115 %, dan presisi dibawah 21. Kadar logam berat Cd dalam air sungai Gajah Wong pada enam lokasi (GW1- GW6) berturut-turut sebesar 0,0114; 0,0072; 0,0068; 0,0056; 0,0098; 0,0063 mg/L. Sehingga, dapat disimpulkan bahwa kadar Cd dalam air Sungai Gajah Wong melebihi 0,005 mg/L.

Kata kunci: SSA, Cd, Gajah Wong, validasi, air.

