ABSTRAK

Air gambut umumnya memiliki warna merah kecoklatan, pH asam, kekeruhan tinggi, dan logam besi tinggi yang konsentrasinya melebihi baku mutu air bersih. Elektrokoagulasi merupakan metode elektrokimia untuk pengolahan air dimana pada anoda terjadi pelepasan koagulan aktif berupa ion logam Aluminium ke dalam larutan. Tujuan penelitian ini mengetahui pengaruh waktu kontak dan jenis elektrolit pendukung terhadap penyisihan Fe, warna dan kekeruhan. Penelitian dilakukan dalam skala laboratorium dengan sistem batch dan kontinyu. Variasi yang digunakan adalah jenis elektrolit pendukung NaCl pro analisis 0,01M, NaCl teknis 0,01M, NH_4Cl 0,01M dan K_2SO_4 0,01M serta waktu kontak 30 menit, 60 menit, 90 menit, dan 120 menit. Hasil penelitian menunjukkan bahwa proses elektrokoagulasi dengan penambahan elektrolit pendukung NH_4Cl menghasilkan efisiensi terbaik dengan penyisihan Fe sebesar 90,92%, warna sebesar 84,93%, dan kekeruhan sebesar 99,94% dengan waktu pengolahan 120 menit. Aplikasi elektrokoagulasi menggunakan reaktor kontinyu dengan penambahan elektrolit pendukung NaCl teknis mampu menyisihkan warna sebesar 88,43%, kekeruhan 92,71%, dan logam Fe terlarut sebesar 91,30%. Hasil pengolahan tersebut telah memenuhi baku mutu air bersih.

Kata kunci*: Air gambut, elektrokoagulasi, elektrolit pendukung, batch, kontinyu*

ABSTRACT

Peat water generally have a brownish red color, acid pH, high turbidity and high ferrous metals that exceeds concentration clean water quality standards. Electrocoagulation is an electrochemical method for water treatment in which the anode active coagulant release occurred in the form of aluminum metal ions into the solution. The purposes of this research are to determine the effect of contact time and the type of supporting electrolyte to the allowance Fe, color and turbidity. This research was conducted in a laboratory scale in batch and continuous systems. Independent variables used were the type of supporting electrolyte 0.01 M NaCl pro analysis, technical NaCl 0.01 M, 0.01 M NH_4Cl and 0.01 M K_2SO_4 and contact time of 30 minutes, 60 minutes, 90 minutes and 120 minutes. The results showed that electrocoagulation process with the addition of supporting electrolyte NH_4Cl produced the best efficiency of an allowance amounting to 90.92% Fe, 84.93% of the color and turbidity of 99.94% with a processing time of 120 minutes. Applications electrocoagulation using continuous reactor with the addition of NaCl technical supporting electrolyte has able to remove the color of 88.43%, 92.71% turbidity and dissolved metals amounted to 91.30% Fe. The treatment results have fulfilled the quality standard of clean water.

***Keyword**: Peat water, electrocoagulation, supporting electrolyte, bacth, continous*