ABSTRAK

PERBANDINGAN EFEKTIVITAS *ALUMINIUM SULFATE* (TAWAS) DAN *POLY ALUMINIUM CHLORIDE* (PAC) TERHADAP PENURUNAN KEKERUHAN AIR BAKU SUNGAI

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Latar Belakang: Air baku Sungai yang mengandung kadar kekeruhan yang tinggi dapat mencemari lingkungan. Metode koagulasi-flokulasi dengan koagulan tawas dan PAC dapat menurunkan kadar kekeruhan yang terdapat di dalam air baku Sungai. Penelitian ini bertujuan untuk mengetahui perbandingan efektivitas tawas dan PAC terhadap penurunan kadar kekeruhan air baku Sungai.

Metodologi: Penelitian *quasi experiment* ini menggunakan *The Non-Equivalent Pretest Postest with Control Group Design* dengan rancangan acak lengkap (RAL). Populasi penelitian ini adalah air baku sungai yang ada di Sungai Serayu Desa Pegalongan Kecamatan Patikraja Kabupaten Banyumas. Penelitian ini menggunakan metode koagulasi-flokulasi dengan koagulan tawas dan PAC dengan dosis masing-masing 0,010 gr/L, 0,017 gr/L, 0,024 gr/L, dan 0,031 gr/L dengan pengulangan sebanyak 3 kali. Uji statistik menggunakan Uji *Anova one way* dilanjutkan uji *Pos Hoc.*

Hasil Penelitian: hasil penelitian menunjukan efektivitas penurunan kekeruhan yang berbeda pada masing-masing kelompok perlakuan perlakuan yaitu: tawas 0,010 gr/L 85,19%, tawas 0,017 gr/L 82,52%, tawas 0,024 gr/L 87,98%, Tawas 0,031 gr/L 82,53 gr/L, PAC 0,010 gr/L 17,16%, PAC 0,017 gr/L 16,42%, PAC 0,024 gr/L 20,65%, PAC 0,031 gr/L 18,74%.

Kesimpulan: Koagulan tawas 0,024 gr/L paling efektif dalam menurunkan kadar kekeruhan air baku Sungai dengan efektivitasnya 87,98%.

Kata Kunci: Kekeruhan, Koagulasi-Flokulasi, Tawas, PAC.

ABSTRACT

COMPARISON OF THE EFFECTIVENESS *ALUMINIUM SULFATE* (ALUM) AND *POLY ALUMINIUM CHLORIDE* (PAC) ON DECREASE IN TURBIDITY OF RIVER RAW WATER

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Background: River raw water contains high level of turbidity may pollute the environment. Coagulation-Flocculation method with alum coagulant and PAC will decrease river raw water level of turbidity. This study aims to find the comparison between alum effectiveness and PAC towards river raw water reduction level of turbidity.

Method: This *quasi experiment* research uses *The Non-Equivalent Pretest Postest with Control Group Design* with complete randomized design (RAL). The population of this study is river raw water in Serayu River, Pegalongan Village, Patikraja District, Banyumas Regency. Coagulation-Flocculation method with alum coagulant and PAC were used in this study with spesific dose in 0,010 gr/L, 0,017 gr/L, 0,024 gr/L, and 0,031 gr/L with three times of repetition. Statistic test using *Anova one way* test continued with *Pos Hoc* test.

Result: The result of this study represent the turbidity decrement of effectiveness in each treatments group of experiment: 0,010 gr/L 85,19% Alum, 0,017 gr/L 82,52% Alum, 0,024 gr/L 87,98% Alum, 0,031 gr/L 82,53 gr/L Alum, 0,010 gr/L 17,16% PAC, 0,017 gr/L 16,42% PAC, 0,024 gr/L 20,65% PAC, 0,031 gr/L 18,74% PAC.

Conclusion: Alum coagulant with 0,024 gr/L that shows 87,98% effectivity is the most effective way to decrease the turbidity of river raw water.

Keyword: Turbidity, Coagulation-Flocculation, Alum, PAC.