

Pengolahan air Danau Kenanga dengan metode kavitasi water jet = Kenanga Lake water treatment water jet cavitation method

Khrist Prasatya, author

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Abstrak

Pada penelitian ini dilakukan pengolahan air Danau Kenanga dengan 2 titik pengambilan sampel yaitu 35 cm di bawah permukaan air dan 35 cm di atas dasar air. Metode yang digunakan adalah metode kavitasi hidrodinamika dengan menggunakan injektor water jet. Dari hasil penelitian, posisi injektor di atas permukaan air lebih banyak menghasilkan radikal OH yaitu sebesar $7,19E-5$ mol/L dibanding injektor di dalam air sebesar $4,69E-5$ mol/L. Kavitasi water jet terbukti dapat mendisinfeksi bakteri gram negatif dengan tingkat keberhasilan 99,99% dan mencapai konsentrasi akhir 15 CFU/mL. Bakteri gram positif memiliki tingkat keberhasilan 99,99% dan mencapai konsentrasi akhir 47CFU/mL pada menit ke-50. Komponen lain seperti logam dalam air dapat disisihkan dengan tingkat keberhasilan pada mangan mencapai 50%, zink mencapai 99,67%, kalium mencapai 99,13%, magnesium mencapai 30,77%, dan kalsium mencapai 86,5%.

.....There were two water sampling points of Kenanga Lake in this study, at 35 cm below the water surface and 35 cm above the bottom of the water. The method used was hydrodynamic cavitation using a water jet injector. The results showed that more OH radicals were produced with injector position on the surface of the water, which was equal to $7,19E-5$ mol/L, compared to the position of water injector in the water which was produced $4,69E-5$ mol/L of OH radical. It was proven that water jet cavitation can disinfect Gram-negative bacteria with a success rate of 99.99% and reach final concentration of 15 CFU/mL. It also had a success rate 99,99% on Gram-positive bacteria with a final concentration 47 CFU/mL after 50 minutes. Another components such as metals in the water can be eliminated with the success rate reaches 50% for manganese, 99.67% for zinc, 99.13% for potassium, 30.77% for magnesium, and 86.5% for calcium.