

**EFFECTIVENESS OF PHYTOREMEDIATION METHODS BETWEEN  
APU WOOD AND HEACH HEATER IN REDUCE  
LEVELS OF COD, BOD AND TSS IN WWTP ( WASTE WATER  
TREATMENT PLANT) CHICKEN HOUSE**

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**ABSTARCT**

**Background:** *The results of the preliminary tests carried out on Mr.Ngadiyono's RPA at Rt 01 Mbang Malang Pendowoharjo Sewon Bantul showed COD levels of 1, 193.35 mg/L, BOD of 632.09 mg/L and TSS of 568 mg/ These results still do not meet the quality standards based on Yogyakarta Special Region Regulation Number 7 of 2016 concerning Water Quality Even though the waste water has been treated before being discharged into water bodies.The addition of processing using the Phytoremediation method between apu wood and water health plants is expected to reduce the COD, BOD and TSS content of chicken slaughterhouse liquid waste so that it meets the required quality standards.*

**Objective:** *To determine the effectiveness of phytoremediation between apuwood and water health plants on COD, BOD and TSS levels in Mr.Ngadiyono's Chicken Slaughterhouse WWTP located at RT 01 Mbang Malang Pendowoharjo, Sewon, Bantul.*

**Method:** *This type of research is a quasi-T with a "Design Test-Post Test With Control Group" research design.This research consists of a control and treatment group.The research data was analyzed descriptively and analytically.Data analysis used the normality test with the Shapiro Fiolic test, then continued with the T - rayThe object of this research is liquid waste from the chicken slaughterhouse industry at RT 01 Mbang Malang Pendowoharjo, Suwon, Bantul, using a composite sampling technique of 2.5 liters.Processing liquid waste from chicken slaughterhouses with a flow rate of 15.67 liters/minute, flowing from a phytoremediation tank with a contact time of 6 minutes and 18 seconds.*

**Results:** *Phytoremediation using apu wood plants on day 7 was able to reduce the average COD level by 22.16%, BOD level by 35.36% and TSS level by 41.99%.Phytoremediation using apu wood plants on the 10th day was able to reduce the average COD level by 1.96%, BOD level by 15.09% and TSS level by 31.92%.Phytoremediation using water health plants on day 7 was able to reduce the average COD level by 19.89%, BOD level by 24.28% and TSS level by 30.48%.Phytoremediation using water health plants on day 10 was able to reduce the average COD level by -0.89%, BOD level by -4.64% and TSS level by 16.01%.*

**Conclusion:** *Phytoremediation between apu wood and water health plants has not been effective in improving the quality of liquid waste from chicken slaughterhouses.*

**Keywords:** *Phytoremediation, Apu wood, water hyacith, COD, BOD, TSS*

EFEKTIVITAS METODE *FITOREMEDIASI* ANTARA TUMBUHAN KAYU  
APU DAN ECENG GONDOK DALAM MENURUNKAN  
KADAR COD, BOD DAN TSS PADA IPAL  
RUMAH PEMOTONGAN AYAM

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**INTI SARI**

**Latar Belakang:** Hasil uji pendahuluan yang di lakukan pada RPA milik bapak Ngadiyono di Rt 01 Mbang Malang Pendowoharjo Sewon Bantul di dapatkan hasil kadar COD sebesar 1.193,35 mg/L, BOD sebesar 632,09 mg/L dan TSS sebesar 568 mg/L hasil tersebut masih belum memenuhi baku mutu Berdasarkan Peraturan Daerah Istimewa Yogyakarta Nomor 7 Tahun 2016 tentang Baku Mutu Air Limbah walaupun sudah dilakukan pengolahan air limbah sebelum dibuang ke badan air. Penambahan pengolahan dengan metode *Fitoremediasi* antara tumbuhan kayu apu dan eceng gondok diharapkan mampu menurunkan kandungan COD, BOD dan TSS limbah cair rumah pemotongan ayam sehingga memenuhi baku mutu yang telah di persyaratkan.

**Tujuan:** Mengetahui efektivitas *fitoremediasi* antara tumbuhan Kayu apu dan eceng gondok terhadap kadar COD, BOD dan TSS pada IPAL Rumah Pemotongan Ayam milik Bapak Ngadiyono yang berada di RT 01 Mbang Malang Pendowoharjo, Sewon, Bantul.

**Metode:** Jenis penelitian ini adalah eksperimen semu dengan desain penelitian “*Pre Test-Post Test With Control Group Design*”. Penelitian ini terdiri dari kelompok kontrol dan perlakuan. Data hasil penelitian dianalisis secara deskriptif dan analitik. Analisis data menggunakan uji normalitas dengan uji *Shapiro-Wilk*, kemudian dilanjutkan dengan uji *T-Test*. Objek penelitian ini adalah limbah cair industri rumah pemotongn ayam di RT 01 Mbang Malang Pendowoharjo, Sewon, Bantul, dengan teknik pengambilan sampel secara composit sampling sebanyak 2,5 liter. Pengolahan limbah cair rumah pemotongan ayam dengan debit 15,67 liter/menit, dialirkan dari bak *fitoremediasi* dengan waktu kontak 6 menit 18 detik.

**Hasil:** *Fitoremediasi* menggunakan tumbuhan kayu apu pada hari ke 7 mampu menurunkan rata-rata kadar COD sebesar 22,16%, kadar BOD sebesar 35,36% dan kadar TSS sebesar 41,99%. *Fitoremediasi* menggunakan tumbuhan kayu apu pada hari ke 10 mampu menurunkan rata-rata kadar COD sebesar 1,96%, kadar BOD sebesar 15,09% dan kadar TSS sebesar 31,92%. *Fitoremediasi* menggunakan tumbuhan eceng gondok pada hari ke 7 mampu menurunkan rata-rata kadar COD sebesar 19,89%, kadar BOD sebesar 24,28% dan kadar TSS sebesar 30,48%. *Fitoremediasi* menggunakan tumbuhan eceng gondok pada hari ke 10 mampu

menurunkan rata-rata kadar COD sebesar -0,89%, kadar BOD sebesar -4,64% dan kadar TSS sebesar 16,01%.

**Kesimpulan:** *Fitoremediasi* antara tanaman kayu apu dan eceng gondok belum efektif dalam memperbaiki kualitas limbah cair rumah pemotongan ayam.

**Kata Kunci :** *Fitoremediasi*, Kayu apu, Eceng gondok, COD, BOD, TSS