

# PENURUNAN KADAR FE DAN KESADAHAN PADA PERUSAHAAN DAERAH AIR MINUM DENGAN FITOREMEDIASI TANAMAN KIAMBANG (*Salvinia Molesta*)

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## ABSTRAK

**Latar belakang:** Salah satu perusahaan air minum yang menggunakan air baku berasal dari sumber- sumber mata air di Semarang. Zat kimia yang ada di air baku dapat menaikkan nilai besi dan kesadahan. Berdasarkan uji pendahuluan didapatkan besi air baku sebesar 2,10 mg/l sedangkan kesadahan sebesar 887,8 mg/l (diatas ambang batas 1.00 dan 500 mg/l). Pengolahan air baku yang dapat dilakukan yaitu dengan metode fitoremediasi menggunakan tanaman kiambang (*salvinia molesta*). **Metode:** Jenis penelitian yang digunakan adalah eksperimen semu dengan rancangan *non randomized pretest-posttest control group design*. Obyek penelitian yaitu air baku di salah satu perusahaan air minum di Kelurahan Tembalang, Kecamatan Banyumanik. Variasi lama kontak yang digunakan yaitu 3 jam, 5 jam, 7 jam. Dilakukan 6 kali pengulangan sehingga jumlah pengamatan 24 sampel yang terdiri dari 18 sampel perlakuan dan 6 sampel kontrol. Hasil pengamatan dianalisis menggunakan uji statistik *Kruskal-Wallis* dan *one way anova*. **Hasil:** besi rata- rata sebelum perlakuan yaitu 2,14 mg/l dan simpangan baku 0,031, sedangkan rata- rata setelah perlakuan yaitu 1,56 mg/l dan simpangan baku 0,339 mg/l. kesadahan rata-rata sebelum perlakuan 569,01 mg/l dan simpangan baku 13,79 mg/l sedangkan rata-rata setelah perlakuan 419,87 mg/l dan simpangan baku 22,62 mg/l **Simpulan:** Ada pengaruh penurunan kadar besi (Fe) dan kesadahan pada perusahaan air minum dengan fitoremediasi tanaman kiambang.

**Kata kunci:** lama kontak, tanaman kiambang, air baku

## ABSTRACT

### Background:

One drinking water company that uses raw water comes from spring sources in Semarang. Chemicals in raw water can increase iron and hardness. Based on the preliminary test, iron raw water was obtained at 2.10 mg / l while hardness was 887.8 mg / l (above the threshold of 1.00 and 500 mg / l). Raw water treatment that can be carried out is by phytoremediation method using a kiambang (*salvinia molesta*) plant **Method** The type of research used was a quasi-experimental design with non randomized pretest-posttest control group design. The object of research is raw water in one of the drinking water companies in Tembalang Village, Banyumanik District. Variations in the length of contact used are 3 hours, 5 hours, 7 hours. 6 repetitions were carried out so that the number of observations of 24 samples consisted of 18 treatment samples and 6 control samples. Observations were analyzed using *Kruskal-Wallis* and *one way anova* test statistics. **Result:** average iron before treatment was 2.14 mg / l and standard deviation 0.031, while the average after treatment was 1.56 mg / l and standard deviation 0.339 mg / l. average hardness before treatment 569.01 mg / l and standard deviation 13.79 mg / l while the average after treatment 419.87 mg / l and standard deviation 22.62 mg / l

**Conclusion:** There is a decreased effect of iron (Fe) and hardness on drinking water companies with phytoremediation of kiambang plants

**Keywords:** contact duration, kiambang plants, raw water