

**REMEDIASI DOC (*DISSOLVED ORGANIC CARBON*) DAN  
POLYAROMATIC HYDROCARBON (PAH) PADA AIR LIMPASAN  
KEBAKARAN HUTAN GAMBUT DENGAN MENGGUNAKAN METODE  
ELEKTROFLOTASI DAN BIOKOAGULASI**

**INTISARI**

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Telah dilakukan penelitian tentang gabungan proses biokoagulasi dan elektroflotasi dalam mengolah air limpasan kebakaran hutan yang mengandung DOC dan PAH. Biokogulan yang digunakan dalam penelitian ini adalah biji kecipir (*Psophocarpus tetragonolobus*) dan biji trembesi (*Samanea saman*). Karakterisasi biokoagulan dilakukan dengan analisis proksimat dan FTIR. Parameter biokoagulan adalah variasi dosis 0,5; 1,0; 1,5 g dengan ukuran partikel 250 mesh dengan pembanding koagulan kimia *Polyaluminium Chlorida* (PAC). Proses biokoagulasi biji trembesi mampu menurunkan DOC, PAH, turbiditas dan TDS masing-masing sebesar 34,32%; 78,57%; 96,61% dan 42,58% serta menaikkan intensitas cahaya menjadi 86,53 % dan pH larutan menjadi 5,8. Sedangkan proses biokoagulasi dengan biji kecipir mampu menurunkan parameter yang sama berturut turut sebesar 56,80%; 31,34%; 88,86% dan 22,24% serta menaikkan intensitas cahaya menjadi 32,91% dan pH larutan menjadi 6,2. Proses elektroflotasi dilakukan pada tegangan optimum sebesar 21 V melalui evaluasi jumlah gelembung gas hidrogen dan oksigen menggunakan perangkat lunak DinoCapture 2.0. Gabungan proses elektroflotasi-biokoagulasi mampu menurunkan parameter yang sama berturut turut sebesar 25,96%; 48,54%; 96,75% dan 35,69% serta menaikkan intensitas cahaya sebesar 95,45% dan nilai pH larutan menjadi 6,1 dengan dosis 0,5 g biji trembesi. Sedangkan dosis 1,5 g biji kecipir mampu menurunkan parameter yang sama berturut turut sebesar 18,81%; 60,14%; 81,12%. Namun terjadi kenaikan nilai TDS sebesar +1,89%, menaikkan intensitas cahaya sebesar 61,49% serta nilai pH larutan menjadi 6,2.

**Kata kunci:** Air gambut. Biokoagulasi, DOC, Elektroflotasi, PAH.

**REMEDICATION OF DOC (DISSOLVED ORGANIC CARBON) AND  
POLYAROMATIC HYDROCARBON (PAH) ON RUNOFF WATER FROM  
PEAT FOREST FIRE BY USING ELECTROFLOTATION AND  
BIOCOAGULATION METHODS**

**ABSTRACT**

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Research has been carried out on the combined process of biocoagulation and electroflotation in treating forest fire runoff water containing DOC and PAH. The biocogulants used in this study were winged bean (*Psophocarpus tetragonolobus*) and trembesi seeds (*Samanea saman*). Characterization of biocoagulants was carried out by proximate analysis and FTIR. Biocoagulant parameters were carried out with a dose variation of 0,5; 1,0; 1,5 g in particle size of 250 mesh and compared with chemical coagulant of *Polyaluminium Chloride* (PAC). The characterization of biocoagulant was carried out by analisis proksimat dan FTIR. Trembesi seed biocoagulation process was able to reduce DOC, PAH, turbidity and TDS respectively by 34,32%; 78,57%; 96,61% and 42,58% and increase the light intensity to 86,53% and the pH of the solution to 5,8. Meanwhile, the biocoagulation process with winged bean seeds was able to reduce the same parameters in a row by 56,80%; 31,34%; 88,86% and 22,24% and increased the light intensity to 32,91% and the pH of the solution to 6,2. The electroflotation process was carried out at an optimum voltage of 21 V by evaluating the number of hydrogen and oxygen gas bubbles using the DinoCapture 2.0 software. The combined electroflotation-biocoagulation process was able to reduce the same parameters in succession by 25,96%; 48,54%; 96,75% and 35,69% and increased the light intensity by 95,45% and the pH value of the solution became 6,1 with a dose of 0,5 g of trembesi seeds. Meanwhile, a dose of 1,5 g of winged bean seeds was able to reduce the same parameters in succession by 18,81%; 60,14%; 81,12%. However, there was an increase in the TDS value of +1,89%, increasing the light intensity by 61,49% and the pH value of the solution to 6,2.

**Keywords:** Biocoagulation, Electroflotation, DOC, PAH, Peat water