Sifat Fisik dan Kimia Tanah Gambut Pasca Kebakaran pada Berbagai Rezim Kebakaran di Taman Nasional
Sebangu, Kalimantan Tengah
Ramadani Sabila Nurafni, Prof.Dr.Ir. Sri Rahayu, M.P.; Dr.Ir. Daryono Prehataen, S.Hut., M.Sc., IPM.
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SIFAT FISIK DAN KIMIA LAHAN GAMBUT PASCA KEBAKARAN PADA BERBAGAI REZIM KEBAKARAN DI TAMAN NASIONAL SEBANGAU, KALIMANTAN TENGAH

Ramadani Sabila Nurafni[1], Sri Rahayu[2], Daryono Prehaten[3]

INTISARI

Kebakaran hutan dan lahan di Indonesia banyak terjadi di lahan gambut dan dapat terjadi secara berulang, sehingga mengubah sifat fisik dan kimia gambut serta memengaruhi laju pemulihan ekosistem. Pengaruh rezim kebakaran yaitu gabungan frekuensi dan waktu pasca kebakaran belum banyak dikaji. Penelitian ini bertujuan mengevaluasi sifat fisik dan kimia tanah gambut berdasarkan frekuensi kebakaran dan waktu pasca kebakaran.

Sampel diambil secara *purposive* pada lima kondisi lahan, yaitu tidak terbakar; terbakar 1 kali pada 2015, 2019, dan 2023; dan 2 kali pada 2015 dan 2019, dengan tiga ulangan. Sifat fisik tanah yaitu warna tanah dan berat volume. Sifat kimia tanah yang diamati meliputi pH (H_2O), C-organik, N-total, kapasitas pertukaran kation (KPK), kation basa (Ca, Mg, K, dan Na), serta kejenuhan basa (KB) yang dianalisis menggunakan metode standar Balai Penelitian Tanah (2023). Data dianalisis menggunakan *Principal Component Analysis* (PCA) dan secara deskriptif.

Waktu pasca kebakaran lebih menentukan pemulihan sifat fisik, C-Organik, dan N-Total dibandingkan frekuensi. Lahan yang baru terbakar paling terdegradasi karena berupa tanah kerangas (berat volume 0,69 g/cm³; C-Organik 2,68%; N-Total 0,08%), sedangkan lahan gambut pada 5-9 tahun pasca kebakaran mendekati kondisi tidak terbakar. Kalium terkuras dan tidak pulih, sementara natrium dan kalsium menjadi lebih tinggi pada lahan 2 kali terbakar. KPK pulih seiring waktu pasca kebakaran, sedangkan kejenuhan basa tinggi pada lahan 2 kali terbakar.

Kata Kunci: Kebakaran gambut, Frekuensi kebakaran, Waktu pasca kebakaran, Sifat fisik tanah, Sifat kimia tanah

[1] Mahasiswa Fakultas Kehutanan UGM
[2] Staff Pengajar Fakultas Kehutanan UGM
[3] Staff Pengajar Fakultas Kehutanan UGM

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SOIL PHYSICAL AND CHEMICAL PROPERTIES OF BURNED PEATLAND ACROSS DIFFERENT FIRE REGIMES IN SEBANGAU NATIONAL PARK, CENTRAL KALIMANTAN

Ramadani Sabila Nurafni[1], Sri Rahayu[2], Daryono Prehaten[3]

ABSTRACT

Forest and land fires in Indonesia occur predominantly on peatlands and often recur, altering the physical and chemical properties of peat and affecting the rate of ecosystem recovery. However, the effects of the fire regime, defined as the combination of fire frequency and time since fire, have received limited attention. This study aimed to evaluate the physical and chemical properties of peat soil under different fire frequencies and post-fire recovery periods.

Soil samples were collected purposively from five land conditions: unburned; burned once in 2015, 2019, or 2023; and burned twice in 2015 and 2019, with three replicates for each condition. The physical properties analyzed were soil color and bulk density. The chemical properties included pH (H_2O), organic C, total N, cation exchange capacity (CEC), exchangeable base cations (Ca, Mg, K, and Na), and base saturation (BS), which were analyzed using the standard methods of the Indonesian Soil Research Institute (2023). The data were analyzed using Principal Component Analysis (PCA) and descriptive analysis.

Time since fire had a greater influence on the recovery of physical properties, organic C, and total N than fire frequency. Recently burned sites showed the greatest degradation, characterized by heath soil conditions (bulk density of 0.69 g/cm³, organic C of 2.68%, and total N of 0.08%), whereas peatlands 5-9 years after fire approached the condition of unburned sites. Potassium was depleted and did not recover, whereas sodium and calcium were higher in sites burned twice. Cation exchange capacity recovered with increasing time since fire, while base saturation remained high in sites that had experienced two fire events.

Keywords: *Peat Fire, Fire Frequency, Time Since Last Fire, Soil Physical Properties, Soil Chemical Properties*

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[1] Student of Faculty of Forestry UGM
[2] Lecturer of Faculty of Forestry UGM
[3] Lecturer of Faculty of Forestry UGM