ANALISIS INDEKS VEGETASI SERTA HUBUNGANNYA DENGAN INDEKS KESUBURAN TANAH PADA KEBUN TEH GUNUNG TALANG

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Abstrak

Tanah berbahan induk vulkanis Gunung Talang berada di Kabupaten Solok, Sumatera Barat. Beragam komoditas pertanian ditanam di sekitar Gunung Talang dan salah satunya ialah teh. Perkebunan teh di Kabupaten Solok berasal dari lahan hutan yang dikonversi menjadi perkebunan teh sejak tahun 1983. Alih fungsi lahan hutan menjadi lahan perkebunan bisa berdampak pada kualitas tanah. Tingkat kesuburan tanah dapat diketahui melalui nilai SFI (*Soil Fertility Index)* dan juga dapat diperhatikan melalui perkembangan vegetasi yang diperoleh dari teknologi penginderaan jauh. Penelitian ini bertujuan untuk mengetahui analisis indeks vegetasi dengan pengolahan NDVI (*normalized difference vegetation index*) serta korelasinya dengan indeks kesuburan tanah pada kebun teh Gunung Talang. Sebanyak 64 sampel tanah (0-20 cm dan 20-40 cm) dengan sistem *grid* interval 500 m x 500 m. Sampel tanah dianalisis di Laboratorium meliputi: pH tanah (H_2O dan KCl), C-organik (*Walkley and black*), P-Tersedia (Bray 1), Kation basa, Al-dd dan N-total (Kjeldahl). Untuk mengidentifikasi indeks vegetasi digunakan *Normalized Difference Vegetation Index* (NDVI). Metode Kriging diterapkan untuk mengestimasikan nilai-nilai pada wilayah penelitian. Hasil penelitian menunjukkan bahwa nilai pH H_2O berkisar antara (5,79-6,75); pH KCl berkisar antara (3,05-6,19); C-Organik tanah berkisar antara (3,33-18,89%); P-tersedia tanah berkisar antara (4,57-7,5 ppm); Kation basa meliputi: Ca-dd berkisar (0,06-10,66 cmol/kg), K-dd (0,45-2,32 cmol/kg), Mg-dd (1,64-2,71 cmol/kg); Al-dd tanah berkisar antara (tu-5,34 cmol/kg); N-total tanah berkisar (0,02-2,00%); nilai SFI berkisar (4,99-6,99), dan analisa NDVI berkisar (0,438-0,92). Korelasi antara SFI dan NDVI didapatkan dengan nilai sangat rendah dan mengindikasikan bahwa SFI dan NDVI tidak berpengaruh satu sama lainnya (R^2= 0,0355).

Kata Kunci: Normalized Difference Vegetation Index (NDVI), Soil Fertilty Index (SFI), Tanah vulkanis, Teh (Camellia sinensis)

ANALYSIS OF VEGETATION INDEX AND CORRELATION WITH SOIL FERTILITY INDEX IN GUNUNG TALANG TEA PLANTATION

Abstract

Volcanic soils is formed in revecity of Mount Talang located in Solok Regency, West Sumatra. Various agricultural commodities are grown around Mount Talang and one of them is tea. Tea plantations in Solok converted from forest to tea plantations in 1983. The conversion of forest into plantation can have an impact on soil quality. The level of soil fertility can be assessed with the SFI (Soil Fertility Index) value and can also be detected with remote sensing technology. This study aims to determine the analysis of vegetation index with NDVI (normalized difference vegetation index) processing and its correlation with the soil fertility index in the Mounth Talang tea plantation. A total of 64 soil samples (0-20 cm and 20-40 cm) were collected with an interval grid system of 500 m x 500 m. Soil samples were analyzed in the Laboratory of soil science such as: soil pH (H2O and KCl), C-organic (Walkley and black), P-Available (Bray 1), Basic cations, Al-dd and N-total (Kjeldahl). To identify the vegetation index by using Normalized Difference Vegetation Index (NDVI). The Kriging method is applied to estimate the values in the research area. The results showed that the pH value of H_2O ranged from 5.79 to 6.75; pH KCl ranged from 3.05 to 6.19; C-Organic soils ranged from 3.33 to 18.89%; P-available soils ranged from 4.57 to 7.5 ppm; Alkaline cations include: Ca-dd between 0.06 to 10.66 cmol/kg, K-dd from 0.45 to 2.32 cmol/kg, Mg-dd from 1.64 to 2.71 cmol/kg; Al-dd soils ranged from immeasurable to 5.34 cmol/kg; N-total soil ranged from 0.02 to 2.00%; SFI values ranged from 4.99 to 6.99, and NDVI analysis ranged from 0.438 to 0.92. The correlation between SFI and NDVI was obtained with very low values and indicated that SFI and NDVI had no effect on each other (R2= 0.0355).

Keywords: *Normalized Difference Vegetation Index (NDVI), Soil Fertilty Index (SFI), Tea (Camellia sinensis), Vulkanic soil*