

عنوان مقاله:

Biochemical monitoring and the susceptibility of trees against traffic air pollution using field spectroscopy

محل انتشار:

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خلاصه مقاله:

In the last three decades, remote sensing techniques have been applied in environment monitoring. Detection of particulate air pollution by remote sensing has well developed by determining the influence of plant condition on the behavior of spectral reflectance. most of the biochemical component and water content of leaves could be affected by stressful agent such as air pollution which in turn will influence the optical properties of leaf. field spectroscopy is a reliable, rapid and nondestructive technique for detecting air pollution in urban areas. this paper aims to use field spectral data to detect the spectral change caused by air pollution stress and to compare statistically the spectral reflectance of polluted and non-polluted leaves of ash using vegetation indices. we also visually compared the reflectance spectra of leaves. for this purpose, the spectral reflectance of 45 trees in two sites was acquired by analytical spectral devices inc ASD. A total of 45 spectrums were analyzed. the comparison of simulated vegetation indices and also derivative analysis of polluted and nonpolluted leaves showed some peaks that can be used to describe changes due to air pollution. the air pollution tolerance index APTI which differs significantly in two sites has a relationship to some spectral indices. for future works identification of a number of some key features of leaf spectra that can provide a basis for the development of a robust tree health indicator for airborne or spaceborne or satellite hyperspectral sensors in urban areas was proposed.

کلمات کلیدی:

air pollution, field spectroscopy, APTI, vegetation index

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