Estimation of Foliar Nitrogen in Selected Vegetation Communities of Uttrakhand Himalayas Using Hyperspectral Satellite Remote Sensing

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Abstract : The study estimates the nitrogen concentration in selected vegetation community's i.e. chir pine (pinusroxburghii) by using hyperspectral satellite data and also identified the appropriate spectral bands and nitrogen indices. The Short Wave InfraRed reflectance spectrum at 1790 nm and 1680 nm shows the maximum possible absorption by nitrogen in selected species. Among the nitrogen indices, log normalized nitrogen index performed positively and negatively too. The strong positive correlation is taken out from 1510 nm and 760 nm for the pinusroxburghii for leaf nitrogen concentration and leaf nitrogen mass while using NDNI. The regression value of R^2 developed by using linear equation achieved maximum at 0.7525 for the analysis of satellite image data and R^2 is maximum at 0.547 for ground truth data for pinusroxburghii respectively.

Keywords : hyperspectral, NDNI, nitrogen concentration, regression value
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