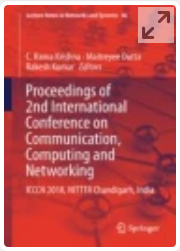

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Reckoning of Photosynthetic Pigments Using Remotely Sensed Spectral Responses of Vigna Radiata Crop for Surge Monitoring

Rupali R. Surase, Karbhari Kale, Amrsinh B. Varpe, Amol D. Vibhute, Hanumant Gite, Mahesh Solankar, Sandeep Gaikwad, Dhananjay Nalawade & Suresh Mehrotra

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Abstract

This paper outlines the intents to develop and assess remotely sensed spectral responses of Vigna radiata crop with an adaxial surface positioned at

Aurangabad region by Latitude 19.897827 and Longitude 75.308666. Current exploration will be useful for crop surge monitoring centered on spectral features collected using ASD Field Spec 4 spectroradiometer intended for the estimation of photosynthetic pigments. The proposed approach resides preprocessing techniques followed via postprocessing methods instigated by python open source software. The preprocessing was prepared using parabolic correction technique with (.asd) files format. Spectral features were projected for detection of photosynthetic pigments using ten categories of indices. Among the diverse phonological patterns of crop progression, the respectable aggregate of a coefficient of correlations was found with fluctuating growth parameters at jointing phase of Vigna radiata. The spectral vegetation indices (SVI) desired for the investigation were composed at jointing and ripening crop phases. SVI was given superior outcomes with R^2 values speckled between 0.91 and 0.99, in addition, good amount of correlation was observed in between NDVI and PSSR-a. The NDVI index was found to be the appropriate parameter for healthy crops and ARI2 was found appropriate for detection of disease crops. Multiple regression equations were used by means of stepwise regression technique using open source software.

Keywords

Spectral signature **Vegetation indices**

Biochemical parameters

Photosynthetic pigments **Crop analysis**

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