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NUMERICAL INDICATORS OF ABSORPTION SPECTRA OF GREEN LEAF EXTRACT OBTAINED FROM PLANTS OF DIFFERENT LIFE FORMS

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Abstract

The study was carried out using 58 species of terrestrial plants of different life forms at the start of their fruiting stage. Photoreceptive systems of the leaves were assessed by means of unconventional numerical indicators of absorption spectra, relative photoabsorption coefficient, photosynthetic pigments' integral absorption intensity and relative absorption intensity coefficient.

As the study showed, the leaves of all trees and light-demanding grasses favoring open spaces, which were subjected to the study were featured by the lowest values of numerical indicators of absorption spectra (NIAS). Shade-demanding grasses, which grow beneath the canopy, by contrast, were featured by the highest NIAS values. These values of the shrub leaves were in between those of light-demanding plants and shade-demanding ones. The results obtained are consistent with modern visions concerning the biochemistry and the physiology of plants' photoreceptive system. It is appropriate to apply the NIAS, which were used in this study and reflect a leaf's photoreceptive properties, as spectrophotometric criteria for monitoring and environmental management of natural plant resources and agricultural plants.

1. Introduction

The crucial indicator of plant function is light energy conversion. While photosynthesis mechanisms [1, 2] and properties of major pigments of the photosynthetic complex (PSC) of chlorophylls and carotenoids, which absorb photons within visible light spectrum [3, 4] have been thoroughly studied, other components, which do not belong to the photosynthetic system (e.g. flavonoids, coumarines, saponins etc.) and generally absorb ultraviolet range light [5, 6], draw