DISTRIBUTION OF IRRADIATION IN PLANT ORGANS

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ABSTRACT The optical properties of leaves with various pigments, stems of woody and herbaceous plants and different fruits were investigated. Light reflectance, absorption and transmittance of irradiation in the photosynthetically active radiation range of wavelength (PAR 400 – 700 nm) and near – infrared (NIR 700 – 1100 nm) were measured. In the PAR range, the light reflectance and absorption in the leaves and fruits was correlated with their colour. In these organs the observed increase of reflectance and decrease of absorption was in the range corresponding to their colour wavelength and light transmittance was influenced by tissue thickness and water content. The optical properties of the woody plant stems were correlated with the wavelength and the reflectance and transmittance increased with increasing wavelength while the absorption decreased. In the NIR range the reflectance increased and absorption decreased in all analysed organs but the transmittance increased in leaves, fruits and stems of herbaceous plants and decreased in woody plant stems.

Keywords: irradiation, plants