

Chlorophyll-carotenoids interactions in model systems and in organisms investigated by photoacoustic spectroscopy

Danuta Frąckowiak, Stanisław Więckowski, Andrzej Waloszek, Alfons Planner, Arkadiusz Ptak, Izabela Hanyż, Jacek Goc

Carotenoids in photosynthetic organisms are involved in the light harvesting process and in the protection of chlorophylls against photo destructions. The first process is realized by the transfer of singlet excitation from carotenoids to chlorophylls, the second, by the quenching of triplet excitation of chlorophylls by carotenoids. Both processes occur with various yields for different chlorophyll-protein complexes and for different carotenoids. In this paper are described the results of the spectral investigations of these processes in organisms and in model systems. It was shown that photoacoustic spectra and time-resolved delayed-luminescence spectra can deliver new information about carotenoids and chlorophylls interactions.