The photosynthetic membrane of a chloroplast consists of lipids (both polar and non-polar ones), photosynthetic reaction centres, electron transporters and many others [1]. It is probably the most complex of all membranes with respect to both structure and function. The chloroplast membrane must conduct many biochemical reactions that have to be regulated in response to different temperatures and light condition changes [2]. It has to cope with destructive effects of both light and oxygen stress, and repair itself if necessary [2]. Interoeration of all membrane’s elements is vital for its proper functioning. We tried to focus only on two components: the light harvesting pigment–protein antenna complex of photosystem II (LHCII) isolated from spinach thylakoids and plant galactolipids such as monodigalactosyldiacylglycerol (MGDG), digalactosyldiglycerol (DGDG) and phosphatidylglycerol (PG). Isolated LHCII is often used as a model system to study the photosynthetic apparatus under different conditions [3]. The aim of this work is to determine mechanisms and types of interactions between LHCII and its lipid surrounding. To achieve this goal we used several spectroscopic methods like circular dichroism, infrared spectroscopy, low-temperature fluorescence and fluorescence lifetime measurements. The changes in protein aggregation were studied. Spectroscopic data showed the type of protein–protein and lipid–protein interactions during membrane stacking. Examination of the type of interactions observed in an artificial, less complicated system, makes the organization mechanisms of specific thylakoid membrane in vivo foreseeable. Acknowledgments KG acknowledges the National Science Centre, Poland for financial support — FUGA2 grant no 2013/S02/NS/093/00823.

References

doi:10.1016/j.bbabio.2014.05.324