

Crystallization Study of Photosynthetic Proteins from *Pisum Sativum*

Ivana Kuta Smatanova^{a,b}, Jose A. Gavira^c, Pavlina Rezacova^d, Frantisek Vacha^{a,c}, Juan M. Garcia-Ruiz^e, ^a*Institute of Physical Biology, University of South Bohemia Ceske Budejovice, Nove Hradky, Czech Republic.* ^b*Institute of Landscape Ecology AS CR, Nove Hradky, Czech Republic.* ^c*Laboratorio de Estudios Cristalografico, Edificio BIC-Granada, Spain.* ^d*Institute of Molecular Genetics AS CR, Prague, Czech Republic.* ^e*Institute of Plant Molecular Biology AS CR, Ceske Budejovice, Czech Republic.* E-mail: ivanaks@seznam.cz

Crystallographic studies of photosystem II (PSII) proteins have given the first description of the structure of PSII, but these models are not absolutely complete as yet. The fact that membrane proteins are often unstable, highly temperature and light sensitive together with their complicated composition are responsible for difficult crystal growing and solving their structure.

Here we report a new approach for crystallization of monomeric photosystem II core complex using the counter-diffusion technique. The core complex of PSII was isolated from *Pisum sativum*, purified and prepared for crystallization trials. The protein crystallized in green needle-shaped crystal form from PEG4000 and MPD in MES pH 6.50 at 291-293K. Protein character of PSII crystals was confirmed by laser spectroscopy, and by X-ray diffraction measurement at the synchrotrons in Hamburg and Grenoble.

Acknowledgements: This work is supported by grant 206/03/D061 of GA CR, by the project 2004CZ0003 in the frame of the cooperation agreement P2004CZ01, and by grants MSM6007665808 of ME CR and AVOZ60870520 of AS CR.

Keywords: membrane proteins, photosystem II, macromolecular crystallization