cost TD1102
PHOTOTECH: BIOSENSORS & BIOCHIPS

Short Term Scientific Mission

TD1102-27213

Project: Study of singlet oxygen generation by photosynthetic processes

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Period of STMS: 16-30. October 2015.
Host institution: University of Turku Department of Biochemistry and Food Chemistry
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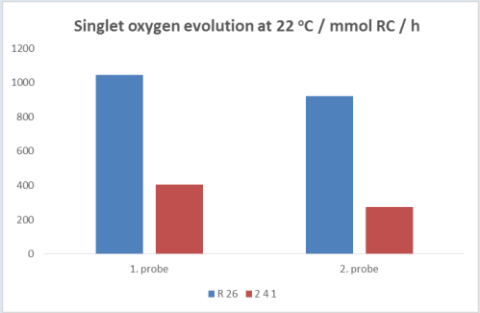

Aims & subject of work:

This work aims a direct continuation of my earlier STSM conducted in 13 - 27. November 2012. The aim was to measure the singlet oxygen production of bacterial RCs with the method of mass spectrometry developed by Prof. Tyystjärvi's lab.
The production of singlet oxygen accompanying the photochemistry of the bacterial RCs is quite well documented in the literature, however it needs further quantification with different independent methods. In order to do this using new methods are definitely commendable.
To our surprise we did not see well identified reproducible signal with this method which was applicable in plant photosynthetic systems.

Argumentation of necessity of STSM:

This visit and collaboration is a great opportunity for us, as both laboratories is highly interested in the detection and study of the singlet oxygen that is a quite important and vital subject in many biological processes, like in photosynthesis. By this short-term visit we could discuss our new results just like the upcoming technical difficulties of the detection of the singlet oxygen by photosynthetic reactions.

Workplan/timeschedule followed:

- Design of the joint work, see the opportunities
- Checking the singlet oxygen production of carotenoid containing and carotenoid less isolated bacterial reaction centers under over-excitation conditions by specific dyes and different measuring conditions.
- Comparing different methods for singlet oxygen detection utrum ut, mauris. Ut vulputate, ligula eu vehicula nonummy, augue dolo

Main results and outcome:

Two different reaction centres of this bacterial strain, carotenoid containing 2.4.1 and carotenoid less R-26 ones were compared. I managed to show the difference between the two types with the above mentioned method. The effect of the carotenoid was well traceable. The 2.4.1 reaction centre produced significantly less amount of singlet oxygen and it was well demonstrable by oxygen electrode with the use of histidine molecule.