BIOSENSOR

Quality Certified
UNI EN ISO 9001: 2008

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FLUORESCENCE-BIOSENSOR

OPTICBIO-Multicells

The OPTICBIO-Multicells product is a versatile portable instrument with the cell array configuration and modular concept. It is equipped with 6 or 24 measurement cells (4 array of 6 cells each), consisting in 2 physically and functionally different compartments, separated by a polycarbonate window. The optical module at the bottom is mounted inside the instrument case and provides fluorescence excitation and detection. The biological module, perfectly sealed, hosts the alga sample under test. The biological cell arrays can be easily and quickly removed to replace the samples, while keeping the optical components fixed.

The instrument measures the photosynthetic efficiency giving the following fluorescence parameters: F0, FM, FV/FM, VJ, 1-Vj. See Giardi and collaborators. Technological applications of chlorophyll a fluorescence for the assessment of environmental pollutants. Anal Bioanal Chem DOI 10.1007/s00216-011-5166-1

Two options are available for the biological arrays according to the selected operation, static or dynamic. In the dynamic mode, the containers are provided with an automatically controlled fluidic system.

OPTICBIO-Multicell with 24 cells offers a big variety of wavelength ranges for fluorescence excitation and emission capture and a unique function of luminous intensity regulation by programming 128 LED light levels to set it to the optimum value for a specific biosample.

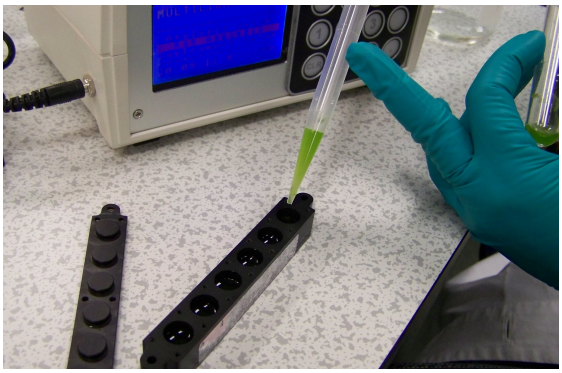
All these features contribute to widen the group of the biologic compounds that can be characterized and measured by OPTICBIO-Multicell. This kind of instrument can be used to study the mechanism of interaction between algal cells treated in various conditions.

Considered the wide commercial availability of fluorofores, OPTICBIO-Multicell can bring significant benefits thanks to its flexibility and modularity in various types of analyses.

Type of instrument static or dynamic	class of biomediators
OPTICBIO-6 Multicells	Algae and photosynthetic organisms
OPTICBIO-24 Multicells	Algae and photosynthetic organisms treated in various conditions

OPTICBIO-MULTICELL FOR ANALYSES OF ALGAL PERFORMANCE

The instrument and the kit are easy to use. Just fill the cells with algae, wait 10 min in the dark and measure it.



Available Standard Components

- Algae (available *Chlorella vulgaris, minutissima, Chlorellaprotothecoides)* on agar and nutrients to be grown 4 days in sterile conditions (Store at RT). It lasts 1 month and can be easily reproduced in laboratory
- Alternatively, Algae immobilized in alginate beads ready to use (store at RT). It lasts 1 month
- Nutrient medium (Store at 5C)

Tests

- Use 300 µl of the algae in the kit at OD 3 (682nm)
- Fill the microcells equipped with biosensor instrument with 100 microliter of the obtained algal culture
- Insert the microcells into the measurement cells and close by screwing the lid down.
- Switch on the instrument and set: dark minutes: 10 min, blank time: 5 sec
- Add 300 µl of your sample to the microcells and mix the liquid suspension by pipetting several times.
- Run the fluorescence measurement (see Instrument User Manual for more details). The optical signal is recorded.

EXAMPLES OF ANALYSIS

The results are displayed on instrument's LCD or on PC screen by an application software provided with the instrument upon request. For the fluorescence measures, compare the fluorescence values obtained from the real sample with the calibration curves of a photosynthetic inhibitor used as reference standards of low photosynthetic performance.

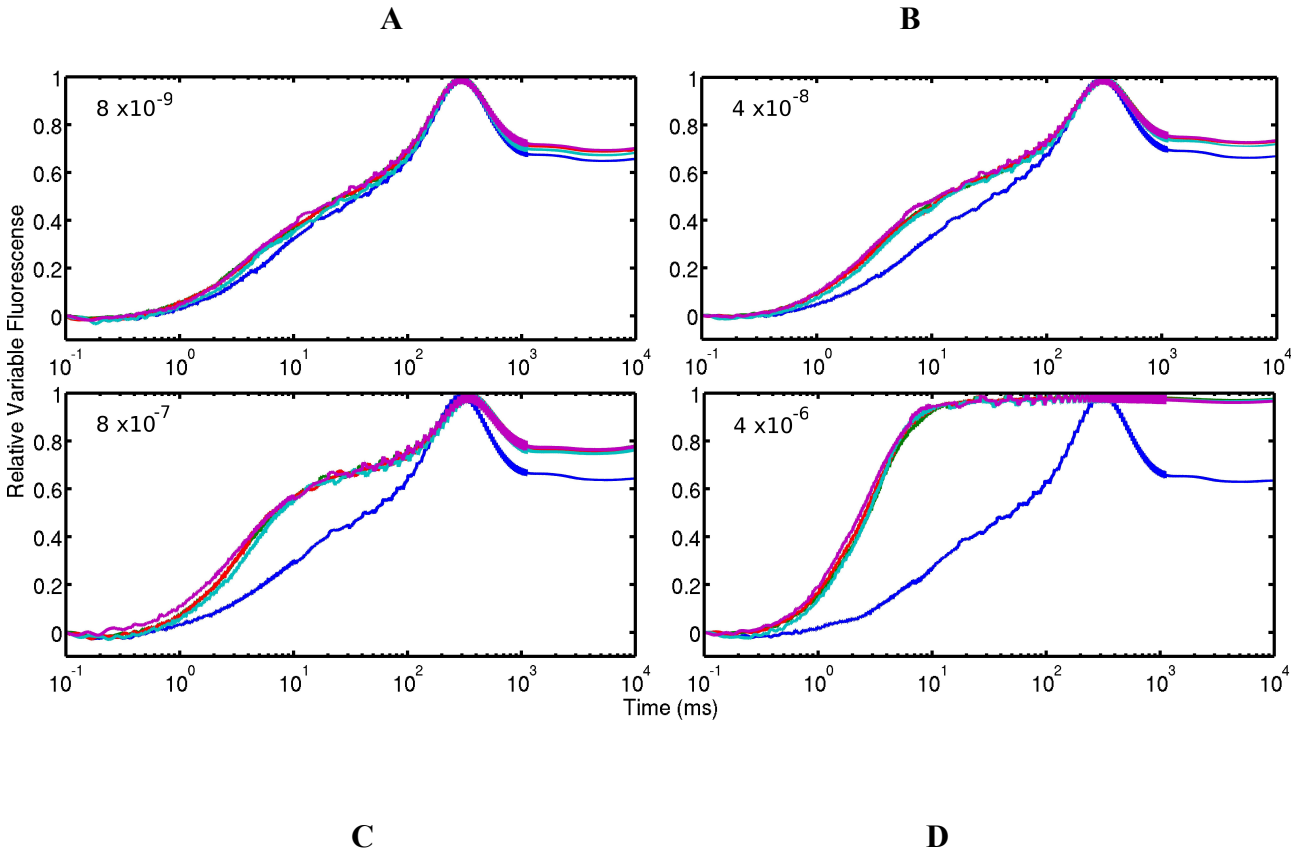


Fig. 1. Example of fluorescence profiles obtained with an urea inhibitor of photosynthesis on a *C. reinhardtii* strain. The fluorescence intensity is plotted versus time. Bleu curve, *C. reinhardtii* control without inhibitor; other colours, five repetitions tests of treated *C. reinhardtii* with a photosynthetic inhibitor (urea) 10^{-9}M (panel A), 10^{-8}M (panel B), 10^{-7}M (panel C), 10^{-6}M (panel D).

Literature

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