Application of an optimized electrochemical sensor in astaxanthin antioxidant properties monitoring against lipoperoxidation, during algae accumulation

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Fig. 1S. FTIR spectra of nanobeads PC-Fe$_3$O$_4$ stored at room temperature; (1) – initial characterization; (2) after 45 days; (3) after 75 days.
Fig 2S. Evaluation of the noise associated to the magnetic field application using chronoamperometry for the reduction of a ferricyanide solution, in flow system.

Fig. 3S. Chronoamperometric response of PC/Fe3O4 sensor (applied potential + 0.385 V vs. Ag/AgCl, flow rate 60 μL min⁻¹, successive injections)
Fig. 4S. Scheme of flow system assembly to develop the PC-Fe$_3$O$_4$/Au sensor for assessing the astaxanthin antioxidant effect.

The scheme of used flow system is given below where buffer is 0.1 molL$^{-1}$KCl; free radical –solution of generated ROO$^-$; PC/Fe$_3$O$_4$ suspension of composite nanoparticles in KCl 0.1 molL$^{-1}$; Antiox sample-test solution (astaxanthin or other presumed antioxidants); D1, D2-detectors, electrochemical cells measuring in chronoamperometry; W-wastes