



A NEW REAL-TIME MONITORING TECHNIQUE OF THE BIOCHEMICAL CONSTITUENTS OF THE ENVIRONMENT

Petrișor Zamora Iordache^{1*}, Nicoleta Petrea¹, Vasile Șomoghi¹, Mihaela Mureșan¹,
Gabriel Epure¹, Rodica Lungu¹, Razvan Petre¹, Ion Savu¹,
Andrada Pretorian¹, Bojin Dionezie², Lucia Mutihac³

¹Scientific Research Center for NBC Defence and Ecology, 225, Olteniței, Bucharest, Romania

²Politehnica University of Bucharest – Biomaterials Research Center, 313, Spl. Independentei, Bucharest, Romania

³University of Bucharest, Department of Analytical Chemistry, 4-12, Regina Elisabeta Blvd., 030018, Bucharest, Romania

Abstract

As a result of the global climatic changes generated by the alteration of the environment through pollution, the ecosystems' natural resources are uncontrollably distributed, generating unforeseeable effects at the level of the subsequent evolution of the natural balance factors. One of the greatest challenges of the science concerned with environment protection, is that of real time monitoring of the biochemical constitution. The real time monitoring of a great number of biochemical constituents represents an inherent requirement in this field, being dictated by the structural complexity of the natural ecosystems. In this sense, we designed a new monitoring technology of the environment's bio-chemical constituents, based on a new technique. The technology which integrates the method proposed consists of the unitary joint of three modules of small dimensions, having the following functions: (e) the sampling of the biochemical structures in real time, continuously and on a wide spectrum (f) specific magnetic discrimination of the fixed biochemical structures (g) the processing and the control of the process experimental data, received from the subordinate modules. The system we propose can monitor biochemically the air, the water and the soil, either separately, or at the same time, according to the requirements of the user. Also, the present paper will present several experimental data relevant to our purpose, obtained as a result of *npa*-BC testing on *B.Cereus*, *St.Aureus*, *E.Coli*, *Ps.Aeruginosa*, saprophyte bacteria and ricin.

Key words: biochemical activation, biochemical detection/identification, environment nanoparticles, real-time biochemical monitoring

* Author to whom all correspondence should be addressed: email: iordachezamora1978@gmail.com, Phone: 0213322115