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New concepts in chemical and biological monitoring of priority and emerging pollutants in water

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The first workshop of the European Union (EU)-funded project EMCO (reduction of environmental risks, posed by emerging contaminants, through advanced treatment of municipal and industrial wastes) entitled “Analysis and removal of contaminants from wastewaters for the implementation of the Water Framework Directive (WFD)” was organised in Dubrovnik, Croatia, in collaboration with the EU project SWIFT-WFD (screening methods for water data information in support of the implementation of the Water Framework Directive), the faculty of Chemical Engineering and Technology at the University of Zagreb (Croatia), the Consejo Superior de Investigaciones Científicas (CSIC, Barcelona) and Agilent Technologies. The workshop took place at the International Centre of Croatian Universities between 20 and 21 October 2005.

In the course of the workshop, 28 lectures and 20 posters were presented, the principal topics being legislation and policy in the field of wastewater treatment, analysis of contaminants in wastewaters, wastewater treatment technologies, risk assessment with special emphasis on the use and validation of the yeast assays for estrogenicity and a special session devoted to reporting the results from the first year of the EMCO project.

During the course of the workshop it was pointed out that there is urgent need for a European list of emerging contaminants, as possible candidates for the introduction into the WFD list of priority substances. This list is amendable for revision and addition of new contaminants every four years. Such addition or replacement of pollutants will be based on the results of present and

future monitoring programs, like those carried out under the EMCO projects where a comprehensive list of pharmaceuticals has been monitored for the first time in Bosnia and Herzegovina, Croatia and the State Union of Serbia and Montenegro. Other emerging pollutants identified are personal-care products (PPCP), pesticides and endocrine disruptors. The resulting combined pure qualitative list will represent an initial step towards a more detailed picture of wastewater treatment plant contamination. Other features are being added including concentrations, frequency of finding, physicochemical, environmental and ecotoxicological properties.

Adequate monitoring and analytical concepts were pointed out to be necessary. Without appropriate tools it will not be possible to investigate the fate and behaviour of emerging pollutants at the wastewater treatment plants and receiving waters. In this sense, analysis of organic pollutants in wastewater is complex basically due to the variety of physicochemical and toxicological properties of compounds included into the same group, like pharmaceuticals. That is why there is a need to develop and accept when ready, standard procedures of chemical analysis and risk assessment of compounds, which is more urgent for emerging contaminants, together with inter-comparison studies in order to validate the analytical protocols. In this respect, the results of the first EU inter-laboratory study on endocrine disruption effect using a recombinant yeast assay (RYA) were reported in Dubrovnik and indicated a good comparison level and the possibility to use RYA as a monitoring tool for the rapid identification of endocrine disruption in wastewater treatment plants.

This special issue of *Analytical and Bioanalytical Chemistry* contains selected papers presented at the workshop. It should be noted that the papers presented at this conference were divided between two journals, *ABC* and *Talanta*, so only some of them are included here. Finally, we would like to thank the local organizers and our co-workers from the Department of Environmental Chem-

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istry for their help when preparing this workshop. The next SWIFT workshop is planned for May this year in Barcelona, whereas the next EMCO workshop will take

place in spring 2007 in either Bosnia and Herzegovina or the State Union of Serbia and Montenegro. We look forward to meeting you there.



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