

Touching base on micro-pollutants (AQUABASE – A Marie Curie project)

An increasingly complex cocktail of chemicals is today finding its way into the environment, and from there, into our drinking water. These so-called micro-pollutants do not respect national boundaries and are thus a global issue. Dealing with the problem means harnessing all available resources, including the best European researchers. The effects of micro-pollutants are the particular concern of the Aquabase project, managed by Rita Hochstrat, a biologist, and coordinated by Professor Thomas Melin, a chemical engineer, both from RWTH Aachen University.

The project received a Marie Curie Early Stage Research Training Grant (€ 1,3 million for the period 01/04/04 to 31/03/08)



Background

The term “micro-pollutants” covers a range of both natural and man-made substances, including a wide range of industrial chemicals, endocrine-disrupting or pharmaceutically active compounds, antibiotics and pesticides. They are discharged deliberately or inadvertently, or may be present as a result of degradation processes. Crucially, many of these substances can persist despite treatment and some of them can affect aquatic organisms and possibly human health.

Aims

The problem of quantifying the occurrence, analysing the distribution pathways, and evaluating the various effects of micro-pollutants represents a set of truly interdisciplinary tasks. To meet the challenge, Aquabase has put together a consortium comprising several departments within the Natural Sciences, Medical and Engineering Faculties of RWTH Aachen University and has trained 14 Research Fellows from various backgrounds thanks to the Marie Curie Actions.

Micro-pollutants, macro achievements

All Fellows received training in the use of powerful analytical techniques, indispensable tools for investigating micro-pollutants. These include the use of radio-labelled substances. Further work was carried out on the separation and identification of pollutants and their degradation products using chromatographic techniques and mass spectrometry.

In addition to key experimental work in the participating laboratories, a full range of activities maximised the effectiveness of training. They included internal and open



workshops on current scientific issues, and tailor-made courses to strengthen fundamental knowledge and highlight particular aspects of the research performed.

Marie Curie Fellow Hanna Maes of Belgium says, 'This fellowship has been the basis of my scientific career. The work I did and the experiences I had allowed me to move forward and eventually take up a post-doc position at the same institution. I came into contact with important scientists in my field, as well as policy makers and people from industry, establishing a strong network of professional contacts.'

Lubomira Kovalova of Slovakia agrees. Now working at the prestigious Eawag Research Institute in Dübendorf, Switzerland, she says, 'The Marie Curie programme is an excellent way to explore science without borders – geographical as well as between the scientific disciplines. For me it was a chance to grow professionally, use state-of-the-art instrumentation, work in well-equipped labs, attend international conferences and meet the people who write the best publications in the field.'

Professor Melin remarks that the analytical results of the project have been particularly significant. The team has developed and improved methods to detect trace substances in wastewater. It has identified new compounds as metabolites from biodegradation and reaction products of treatment processes.

On Marie Curie Actions

For more than a decade, the European Commission's Marie Curie Actions (MCA) have supported researcher training, career development and transfer of knowledge. The experience of MCAs in promoting international and intersectoral mobility of researchers is well recognised and makes the People Programme one of the key drivers for European innovation. Tailor-made fellowships and networking activities among high profile universities, research centres, business and SMEs benefit not only the researchers but also the wider economy by enabling the cross-fertilisation of ideas, methods and industrial procedures.

Over the lifetime of the Seventh Framework Programme Marie Curie will have funded more than 10000 new PhDs in Europe and with a total budget of 4,75 Billion €, the Programme will fund around 55000 researchers in total.

In 2011 alone, the People programme, with a budget of 772 Million € will create 7000 new positions, of which 2000 will be for PhD candidates. These new PhDs will benefit from excellent skills-training preparing them for the jobs of the future. In addition, the researchers always enjoy full employment contracts with attractive salaries, full social security coverage and pension benefits which are at the heart of the researcher-driven focus of the Marie Curie Actions. The People programme is setting the standard for professionalizing researchers' careers in line with the Commission's Charter and Code for Researchers.

Marie Curie Actions play a catalytic role by opening Europe's borders to the best worldwide research talents. International scientific cooperation is strongly promoted with more than 1.6 billion € dedicated to this objective over FP7.

Finally, by supporting a bottom-up approach, Marie Curie Actions finance numerous multidisciplinary, international and intersectoral research projects addressing major societal challenges, from climate change to health and ageing.

For more information on the Marie Curie Actions:

<http://ec.europa.eu/research/mariecurieactions/>

For more information on the project AQUABase: www.aquabase.rwth-aachen.de/

Thomas Melin
RWTH Aachen University
AVT- Chemical Process Engineering
Turmstr. 46
52056 Aachen
Germany
Tel. +49 241 80-95470
Fax +49 241 80-92255

