

# ANSWER NEWS

H2020-MSCA-ITN-2015/675530



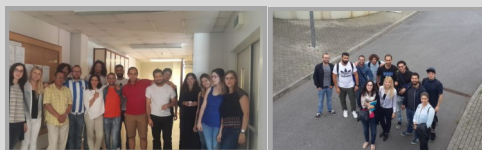
**IN THIS ISSUE:**

- ANSWER TE-D
- ANSWER TE-E / 1st ANSWER Workshop
- Project scientific progress
- Outreach activities
- Networking
- Conferences' participations
- Next ANSWER TE-F
- Mid-Term Meeting
- ANSWER News
- ESRs' secondments
- Deliverables completed so far
- ANSWER reports

On the 5<sup>th</sup> - 7<sup>th</sup> of July, 2017, the ANSWER Training Event D (TE-D) on "wastewater microbiota and the effects of treatment processes" was held in Porto, Portugal. This TE was organized by the Universidade Catolica Portuguesa (UCP) and the company Adventech, and was hosted by Dr. Celia Manaia (UCP). It was an open to the general public event, since not only ESRs were able to participate but also Ph.D. students in the field of Chemical/Environmental Engineering, Chemistry and Microbiology. Ten (10) ESRs and 2 Ph.D. students participated in this event.

During the TE-D, bacterial diversity and ecology in wastewater and related environments that can be impacted by wastewater discharges, in particular freshwater and soils were presented and discussed. Participants were invited to critically revise the methodological approaches most adequate to assess the survival, viability and genetic stability during and after water treatment. The complementarity between culture-dependent and independent approaches and associated biases on the study of antibiotic resistance in wastewater environments was discussed. TE-D aimed at creating a live discussion forum on the identification of critical control points for antibiotic resistance spreading during wastewater treatment, as well as the most suitable methodologies to assess resistance fate. In addition to studying, the students had the opportunity to enjoy an interesting guided tour at the urban Wastewater Treatment Plant - ETAR do AVE, and to explore the city of Porto in their free time.

For more details please visit the following link: <http://www.answer-itn.eu/event/training-event-d/>.



Training Event E (TE-E) on "wastewater treatment by advanced technologies and risk assessment framework" was held in Fisciano (SA), Italy on the 4<sup>th</sup> of September 2017. This event was organized by the Università degli Studi di Salerno (UNISA) and the Istituto Superiore di Sanità (ISS), and was hosted by Dr. Luigi Rizzo at the UNISA. It was a combined event with the 1<sup>st</sup> ANSWER workshop on "risk prognosis of environmental and public health aspects of A&ARB&ARGs" (5<sup>th</sup> - 6<sup>th</sup> of September, 2017). It was open to the general public event, since not only ESRs were able to participate but also Ph.D. students in the field of Chemical/Environmental Engineering and Environmental Sciences. **Ten (10) ESRs participated in TE-E and 15 Ph.D. students.**

The 1<sup>st</sup> ANSWER workshop addressed direct/indirect human health risk associated to the presence of microcontaminants (including in antibiotics and antibiotic resistant bacteria and genes) in wastewater. Through this workshop the following aspects were addressed: (i) Environmental Quality Standards of the Water Framework Directive and the EU approach on water reuse, (ii) Target and non-target organics screening in wastewater for addressing the fate of antibiotics and other emerging organic pollutants: analytical issues and challenges, (iii) Where are we going with risk assessment? The challenges for the future!, (iv) Molecular methods for detection of antibiotic resistance in environmental matrices: limits, prospects and challenges, (v) Antibiotic resistance transfer into the environment, (vi) Emerging and re-emerging microbial pathogens in surface water, (vii) Applications of Next Generation Sequencing in Metagenomics Studies, (viii) (Eco-)toxicity of contaminants of emerging concern: a focus on antibiotics, (ix) In vitro assays on cell lines to investigate toxicity of environmental contaminants, (x) Antibiotic pharmacodynamics: relation to antimicrobial resistance, (xi) Introduction to Life Cycle Assessment and application to urban wastewater treatment plants, and (xii) Effect of disinfection processes on antibiotic resistance in urban wastewater.

In this workshop, various stakeholders, end-users, wastewater treatment plant operators/managers, water utilities, environmental associations, non-governmental authorities (NGOs), representatives from relevant governmental authorities, as well as the general public were invited to participate. **The workshop attracted a high number of participants (total number of participants=33) from various areas of expertise and fields of interest. In addition, ten (10) ESRs participated in it.**

ANSWER ESRs have submitted to the ANSWER Coordinating team, the Directors of Research (C. Manaia, T. Berendonk) and Directors of Scientific Training (L. Rizzo, S. Silva) their **third six-month reports**, which were designed to internally monitor/evaluate the work progress of each ESR towards their target objectives, including achievements of any deliverables and training/dissemination activities, during the reporting period. The six-month report of each ESR will be also distributed to the members of their Evaluation Committee (**co-supervisors**), for their information, comments and approval. In general, the scientific objectives of our project is progressing smoothly.

**Outreach activities:**



1	2	3	4	5	6
Visit to elementary schools/ gymnasium/ lyceums (3 schools per ESR)	Radio talks/ TV talks/shows	Articles in newspapers	Development of a video/ audio clip providing an overview of his project	Visit to end-users	Participation at 'Café Scientifique' events
ESR1: 1 school ESR6: 1 school ESR7: 1 school ESR8: 1 school ESR10: 1 school ESR11: 3 schools ESR12: 2 schools ESR13: 2 schools ESR14: 3 schools ESR15: 1 school	ESR1: radio talk ESR3: radio talk ESR8: radio talk ESR11: radio talk ESR13: radio talk ESR14: radio talk ESR15: radio talk	ESR5 ESR6 ESR8 ESR10 ESR12 ESR13 ESR14 ESR15	none	ESR2 ESR5 ESR6 ESR8 ESR15	ESR2 ESR8 ESR15

ANSWER beneficiaries are actively seeking and exploring **synergies, partnerships and collaborations** with other initiatives/projects/organizations, in order to identify new opportunities for further knowledge transfer/training, and to be fully up to date concerning new developments in the field of wastewater treatment/reuse and antibiotic resistance.

**Water Reuse Europe (WRE)** which is an industry-focused not-for-profit association, which aims at creating a collective identity for the water reuse sector across Europe, uploaded in **August 2017** the ANSWER project in its website. For more details please visit the following link: <http://www.water-reuse.eu/research>.

### Conference participations:

- ◆ **R.B.M. Marano**, E. Cytryn, "Following the mobile resistome through the path of reclaimed wastewater: from treatment plants to irrigated crops", 4<sup>th</sup> International Symposium on the environmental dimension of antibiotic resistance (EDAR 2017), 13-17 August, 2017, East Lansing, Michigan, United States. (*Poster presentation*)
- ◆ **G.K. Paulus**, L. Hornstra, G. Medema "Development and application of Multiplex qPCR for Antibiotic Resistance Genes in the Water Cycle", 4<sup>th</sup> International Symposium on the environmental dimension of antibiotic resistance (EDAR 2017), 13-17 August, 2017, East Lansing, Michigan, United States. (*Poster presentation*)
- ◆ **F. Cerqueira**, **D. Tadic**, V. Matamoros, J.M. Bayona, B. Piña, "Distribution of Antibiotic Resistance Genes and Microbiome analysis in agricultural soil and Edible Plants in Catalonia", 10<sup>th</sup> Micropol & Ecohazard Conference 2017, Vienna, Austria, 17-20 September 2017. (*Oral presentation*)
- ◆ **D. Tadic**, V. Matamoros, J.M. Bayona, "Simultaneous determination of five classes of antibiotics in vegetable matrices by sonication, SPE cleanup and UPLC-MS/MS determination", 19<sup>th</sup> International Symposium on Advances in Extraction Technologies, ExTech2017, Santiago de Compostela, Spain, 27-30 June 2017. (*Poster presentation*)
- ◆ **E. Radu**, M. Woegerbauer, M. Oismüller, N. Kreuzinger, "Impact of antibiotics of anthropogenic origin on bacterial soil communities in agricultural ecosystems", 20<sup>th</sup> International Symposium "Environment and Industry" SIMI 2017, Bucharest, Romania, 28-29 September 2017. (*Poster presentation*)
- ◆ **K. Slipko**, D. Reif, N. Kreuzinger, "Effect Of Use Of Different Types Of Membranes On Cell Free Bacterial DNA Removal From Wastewater Treatment Plant Effluent ", 10<sup>th</sup> Micropol & Ecohazard Conference 2017, Vienna, Austria, 17-20 September 2017. (*Oral presentation*)
- ◆ **I. Zammit**, R. Cucciniello, V. Vaiano, D. Sannino, A. Proto, L. Rizzo, "Disinfection efficiency of selected photocatalysts on *E. coli* indigenous to wastewater treatment plant", Environmental Applications on Advanced Oxidation Processes (EAAOP5), Prague, Czech Republic, 25-29 June, 2017. (*Poster presentation*)
- ◆ **V. G. Beretsou**, I. Michael-Kordatou, N.S. Thomaidis, D. Fatta-Kassinos, "Assessment of sulfamethoxazole UV-C/H<sub>2</sub>O<sub>2</sub> oxidation: Elucidation and stability of transformation products", 15<sup>th</sup> International Conference on Environmental Science and Technology (CEST2017), Rhodes, Greece, 31 August-2 September 2017. (*Oral presentation*)
- ◆ **N. Alygizakis**, M. Gramblicka, R. Mistrik, N. Thomaidis, J. Slobodnik, "Novel workflow for identification and determination of antibiotics and their transformation products in wastewater by liquid chromatography coupled to high resolution-mass spectrometry", 15<sup>th</sup> International Conference on Environmental Science and Technology (CEST2017), Rhodes, Greece, 31 August-2 September 2017. (*Poster presentation*)

ESR2, ESR5, ESR6, ESR8, ESR9, ESR10, ESR12, ESR14, ESR15

#### Project Deliverables completed:

- D5.1: Web-based database for A, TPs, ARB&ARG in WW, soil, ground/surface water and crops matrices
- D6.1: Summer School Documentation
- D6.4: 15 Personal Career Development Plans
- D7.1: Guidelines for the recruitment process
- D7.3: IPR management plan
- D7.4: Researcher Declarations
- D7.9: Supervisory Board of the network
- D7.10: ETHICS - Delivery of documents
- D8.1: Website
- D9.1: Environment Protection Question - Requirement No1
- D9.2: Environment Protection Question - Requirement No2
- D9.3: Environment Protection Question - Requirement No3
- D9.4: Environment Protection Question - Requirement No4

#### Project Deliverables under preparation:

- D6.2: 1<sup>st</sup> Progress Report from trainees from Training Events
- D6.3: 1<sup>st</sup> Workshop documentation
- D7.8: Draft Periodic Report



The organization of the next Training Event F (TE-F) on "practical exercise on computer tools for identification and structure elucidation of antibiotics, their metabolites and transformation products" has started. It will be held in **January, 2018, in Slovakia**. Environmental Institute (EI) (Dr. Jaroslav Slobodnik) and HighChem (Dr. Robert Mistrik) are the organizers of this training event.

During the training, the theory and practise of gas chromatography-mass spectrometry (GC-MS) and accurate mass liquid chromatography-mass spectrometry (LC-MS) techniques will be presented both through lectures and practical demonstration together with state-of-the-art models and computer tools for structure elucidation and spectral libraries (i.e. Mass Frontier, publicly accessible m/z Cloud and the open source database 'NORMAN MassBank'). In addition, structure generation and public database search together with approaches to yield fragmentation-based classifiers will be presented. The participants will have the opportunity to test the above tools on their own data.

More details coming soon at the following link: <http://www.answer-itn.eu/event/training-event- -/>.

The organization of the **Mid-Term Meeting (MTM)** has been started, which will be held in **Larnaka, Cyprus** on the **6<sup>th</sup> of November, 2017**.

During this meeting the project Coordinator, the scientist-in-charge (beneficiaries), the representatives of the partner organizations, the appointed ESRs, the Head of Sector, MSCA-ITN Unit and an external expert will participate.



**Newspapers/online portals** with a specific focus on the areas of research and innovation are used to disseminate information about ANSWER. You can find ANSWER press articles at the following link: <http://www.answer-itn.eu/in-the-spotlight>.

#### For more information please visit our

##### Webpage:

["http://www.answer-itn.eu/"](http://www.answer-itn.eu/)

##### Facebook page:

["https://www.facebook.com/answer.itn/"](https://www.facebook.com/answer.itn/)

##### Twitter page:

["https://twitter.com/answer\\_itn/"](https://twitter.com/answer_itn/)

In order to ensure the **smooth organization and implementation of the forthcoming secondments, specific guidelines** have been prepared by the Coordinating team and **disseminated to the ANSWER ESRs, beneficiaries and partners.**



ESRs	Secondments so far
ESR1	Nireas-IWRC, UCY (completed), HUJI (on-going)
ESR2	WABAG (completed)
ESR3	AVBS (on-going)
ESR4	AVBS (completed), TU-Wien (on-going)
ESR5	UCP (completed)
ESR6	TUD (completed), KWR (on-going)
ESR7	-
ESR8	HighChem (completed)
ESR9	AGES (completed)
ESR10	UCP (semi-completed), WABAG (completed)
ESR11	Adventech (on-going)
ESR12	-
ESR13	UNISA (completed)
ESR14	EI (semi-completed), HighChem (semi-completed)
ESR15	HighChem (completed), KWR (on-going)

The **Mid-term report** of the ANSWER project will be submitted to Research Executive Agency (REA) in **October 9, 2017**, while the **periodic report** of the project is under preparation and will be submitted in **November 2017**.

#### Acknowledgments:

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 675530"

#### Disclaimer:

"The content of this newsletter is only the authors' view and the Agency is not responsible for any use that may be made of the information it contains"

