

Portrait of Camelia Stefanache

Sciex Fellow and Doctoral Candidate in phytochemistry and biotechnology at the Institute of Biotechnology of the Zurich University of Applied Sciences ZHAW in Wädenswil

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Camelia Stefanache (25) holds a master's degree in biology from Alexandru I. Cuza University in Iași (Romania), where she specialized in microbial and cell biotechnology. She started her research career at the 'Stejarul' Biological Research Centre in Piatra Neamt, a branch of the National Institute of Research and Development in Biological Sciences. A twelve months research stay at the laboratories of cell culture and of phytochemistry at the ZHAW constitutes the second year of her PhD studies. There, she is a mentee to Dr Evelyn Wolfram and Prof Dr Regine Eibl. Her Sciex project is entitled „ArnicActiveCell“ and investigates the development of a cell culture system in order to obtain biological active compounds and a regeneration for natural Arnica montana resources.

It has been two years now since Sciex Programme participation was extended to Romania. The new EU-Member started in 2011 with an overall budget of 8 million Swiss Francs, the second largest of all New Member States.

One of the first Fellows coming to Switzerland within this new Sciex cooperation was Doctoral Candidate Camelia Stefanache. As Sciex is open to all types of Swiss higher education institutions, she chose to team up with partners at the ZHAW in Wädenswil.

Camelia met her future Host Mentor at a symposium in the Swiss alpine village of Saas Fee, where Dr Wolfram was presenting her main field of research at ZHAW, a couple of months before applying for a grant. When drawing up the Sciex proposal this encounter proved to be helpful, says the Fellow: *“We exchanged business cards and when the opportunity with the Sciex pro-*

gramme appeared, I contacted her directly and we started to develop the project”.

A showpiece of interdisciplinarity

Take cell biology, biochemistry, phytopharmacy, ecology, add a pinch of economy and you will get the approach Stefanache has to providing a solution for the sustainable harvesting of *Arnica montana* resources – an issue of equal importance to all alpine regions in Europe. Be it in the Swiss Alps or in the Southern Carpathians, recent increases in industrial uses of the plant are putting its natural distribution at risk.

Known for centuries for its medical use, *Arnica* is currently regaining new fame, as the plant's use in phytopharmacy and cosmetics is expanding. Containing helenalin as a biochemical compound it exerts inter alia a potent anti-inflammatory effect. It goes without saying that the potential medicinal interest is high in several fields of application. Stefanache observes: *“Recently published scientific studies on immunomodulating and anti-cancer activity have shown that there's an increase in possible applications of Arnica and helenalin. The trend shows that natural products have a greater increase in use than synthetic ones. That is why a balance has to be found and this is where biotechnology can make a contribution to preserving biodiversity”.*



At the Cell Culture Laboratory, ZHAW

In order to ensure a sustainable use of the natural resources, Stefanache and her project partners are currently developing an alternative method for obtaining secondary metabolites by exploring its in-vitro embryogenesis and thus minimizing the impact on natural habitats. These efforts encompass



several stages from collecting and selecting plant material in Romania and Switzerland, assessing the material biochemically to the establishment of appropriate cell cultures. The schedule is tight as the duration of the project is 12 months. Returning to her Home Institution, Camelia Stefanache is due to conduct a plant count as to establish the actual state of resource exploitation.

Development is the magic word

In the long run, she plans on sharing the experience and knowhow she is currently gaining at the ZHAW laboratories in Wädenswil: *“The field of phytopharmacy is quite developed in Romania, while the field of biotechnology needs further advancement. My dream is to set up an academia related biotechnology laboratory at my Home Institution in a few years time. Thus we could train the competent human resources needed on the labour market”*.

Camelia Stefanache was instantly attracted to the core aims of the Sciex Programme. *“While more and more people are leaving Romania for good, this programme wants to achieve the opposite. Send academics abroad for a fixed duration where they can acquire new skills and know-how, and then have them turn back to their home country where they can apply it. If everybody goes abroad, who will remain to bring the country forward?”* she asks rhetorically.



Collecting plant material in Romania's Eastern Carpathians

Besides the fact that a Sciex Fellowship constitutes a personal enrichment, *“here I have very good laboratories and people with excellent knowledge in the field. I have*

the chance to learn from the best. You don't get this chance every day!” Stefanache states. Yet she sees her academic advancement in Switzerland not only as a most welcome opportunity, but also as a way to contribute to the Sciex overall objectives.

Building bridges

The cooperation on Stefanache's research project started after a meeting on the fly, but she feels really lucky to have met her future Host Mentor, even if it was just for five minutes at a conference. *“It must be tougher for persons without any connection, because when I was drawing up the proposal I could easily exchange e-mails with my Host Mentor at one o'clock in the morning, when necessary”*, she laughs.

“If everybody goes abroad, who will remain to bring the country forward?”

In fact there were no links between the involved institutions before, making it an entirely new collaboration.

“There's an excellent connection between Home and Host Mentor. They are both working on getting this relationship institutionalized, planning a student exchange programme and joint teaching activities, so that the collaboration can be continued”. Home Mentor Prof Dr Catalin Tanase is to come to the ZHAW in spring while Dr Evelyn Wolfram will present her work at Alexandru Cuza University during academic festivities in October.

Closing divides

Creating lasting connections between academic partners should not only help people to think in European dimensions when cooperating in research. It could eventually reduce a malaise deeply rooted in Europe's history of nation states and the way some citizens perceive their fellow citizens from other regions. Host Mentor Dr Wolfram is very committed towards reducing prejudices by promoting Stefanache's collaboration project: *“She makes people see that researchers from Eastern European*

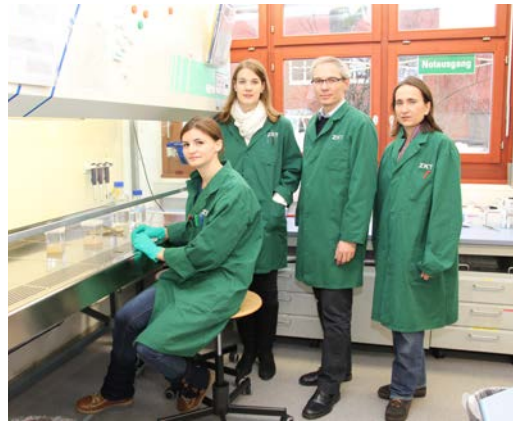
countries are on par with her own in terms of science. She is helping to let people see a different kind of Romania, thus overcoming stereotypical images common in insular mind-sets”, says the Fellow.

Nevertheless, the cooperation’s outlook is not purely academia-related as talks about a continuation in a EU research collaboration context might suggest.

“There’s a potential for industrial spill-over if we manage to extract the bioactive compounds we need in an economically advantageous way – but it’s a long shot”. ZHAW being a University of Applied Sciences, R&D and practical application do matter. “I attended a meeting with representatives of the cosmetic industry at the end of January where I presented my project, highlighting the links towards cosmetics. We notice a certain interest of the industry in our research, but it’s a long way to the concrete application.”

However Camelia Stefanache is in fact enhancing her academic network in short-term. Her project team is due to visit the Federal Agroscope Research Centre in the canton of Valais, as they are developing joint projects and profit from Agroscope’s broad expertise in medicinal plant research. Sciex can only concur: *“the more, the merrier”!*

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F.l.t.r.: Fellow Camelia Stefanache, Nicole Imseng (member of the research team), Prof Dr Tobias Merseburger (Director of the Institute of Biotechnology at ZHAW), Dr Evelyn Wolfram (Host Mentor)

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Scientific Exchange Programme between the New Member States of the EU and Switzerland

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