

Interview

Topic	BioCoat
Interviewee	Dr. Felix Jakob, Dr. Elisabeth Heine
Moderator	Sea-Hyun Lee

Introduction

BIOTEXFUTURE is an innovation space funded by the German Federal Ministry of Education and Research (Bundesministerium fuer Bildung und Forschung, BMBF) for a duration of 5 years. Since November 2019, adidas is co-leading the program in collaboration with the RWTH Aachen University. BIOTEXFUTURE is collaborating with industrial and scientific partners who share the same vision to convert the textile value chain from petroleum-based to bio-based and strive every day to create the change needed in the industry. Today you will gain some insights on BioCoat, which is one of the first projects that has been launched in BIOTEXFUTURE.

Q&A

Question: Hello Felix and Elisabeth, thank you for joining the Interview and let's start with an easy question: What is occupying your mind at the moment?

Elisabeth: Our thoughts at present are with the Ukraine people that suffer from the barbaric attack against humanity and freedom. This is 100 % diametrically opposed to our common thoughts and actions in the EU and especially in our context supporting the joint goal within the European “Green Deal”.

Question: Within BIOTEXFUTURE you run the project BioCoat together with your colleagues from adidas AG and Frohn High Tex Group. What is behind the Project?

Felix: BTF focusses on the biologization of the textile value chain – from biobased textiles to biobased finishes. Within the BioCoat project we develop and prepare coatings for high performance textiles based on proteins. More specifically from peptides, that are small biological building blocks derived from nature. The technology is developed within DWI and applied by our industrial partners to demonstrate the functionality on a lab scale.

Question: You were talking about new finishes from peptides. For the people without chemical background, what are peptides, what kind are you using and what abilities are you hoping to achieve?

Felix: Peptides are omnipresent in our daily life and on our body, e.g. they are present on our skin and in our tear fluid as antimicrobial peptides, but they are simply too small to be visible by eye. Within BioCoat we develop on the one hand a platform technology based on so-called ANCHOR peptides that irreversibly bind to the textile surface and are fused with the desired biological building block for the FUNCTIONS – moisture management and antimicrobial function.

Question: How would the whole process work to apply your finish onto the new fabric? Have there been already tests to prove the said abilities?

Elisabeth: The beneficial thing is that the coating can be applied using textile finishing machines that are already available at the textile finishing companies. Antimicrobial efficacy has been proven on lab scale already using different biobased antimicrobial functionalities. Together with adidas industrially relevant moisture management trials are being processed at present.

Question: What has been working really well in BioCoat and what kind of obstacles have you been tackling so far?

Felix: Within BioCoat we have an excellent exchange among all partners from different disciplines and backgrounds. Within the first project half we were able to establish the anchor platform technology and we successfully identified peptides for all kind of relevant textiles from adidas and Frohn. Besides that we identified the functional biological building blocks that will be fused with the peptides to generate final coating. The stability of the coating will then be optimized by Protein Engineering.

Question: How does this present itself to the public? Is BioCoat project a purely scientific project?

Elisabeth: We provide a biodegradable finish based on tailor-made proteins for biobased textiles to replace finishes from non-renewable resources / non-biodegradable finishes. The goal is that the consumer at the end will not see or feel the difference.

Question: The innovation space BIOTEXFUTURE is funded by the BMBF for 5 years. Over two years have already passed. What are your goals within BioCoat for the remaining time?

Felix: Together with the TRANSITION LAB and our partners we will design and build a demonstrator that will be evaluated by our industrial partners. In case of success the developed technology will ultimately contribute to the establishment of a sustainable and biobased textile value chain.