"I am a risk assessor"

Professor Dr. Tanja Schwerdtle has been the new Vice President of the BfR since March 2020. A visit shortly before taking up her new post.

Tanja Schwerdtle does not show signs of any stress. Recently returned from a three-day marathon of meetings at the European Food Safety Authority EFSA in Parma, northern Italy, the scientist is still fresh, friendly and focused on our conversation. We meet on a wintry cool Friday afternoon in Rehbrücke, a small town near Potsdam. This is – for the moment – still the food chemist and toxicologist's workplace: in a building complex at the University of Potsdam and the German Institute of Human Nutrition Research.

Schwerdtle comes out of a meeting with her working group and rejects the coffee provided on the conference table. "I've had enough," she declares. She is still a professor at the University of Potsdam's Institute of Nutritional Science. But in a few weeks, she will take up her post as Vice President of the German Federal Institute for Risk Assessment, when she will be 45. An occasion to look back – and, more importantly, to look forward.

It all began with metal species. They have shaped Schwerdtle's scientific career. But what exactly are metal species; what is it all about? This launches us into the middle of the scientific discussion. Schwerdtle looked at how different metal compounds – different "species" – have an effect on the body.

A team player: chemist Tanja Schwerdtle appreciates flat hierarchies. In her free time, she likes to go jogging and be alone with her own thoughts.

Arsenic has two faces

A good example of this is arsenic, which Schwerdtle and her working group studied for many years. Arsenic is a metal-like element. In a sense, it has two faces, an "organic" one and an "inorganic" one. Organic arsenic is part of a carbon compound, like a sugar molecule. More than 200 organic arsenic compounds can be detected in food. Many are comparatively harmless, as long as they are soluble in water.

Inorganic arsenic is different. It contains no carbon and has a simple structure – here the arsenic is more exposed and has a more direct effect. This makes it a risk. Inorganic arsenic compounds, such as arsenite, are therefore highly toxic and can cause cancer. "Whether a food contains arsenic is not so important for the health risk," explains Schwerdtle. "Because it is not the metal alone that accounts for the effect, but rather the chemical compounds in which it is contained – they determine the toxicity." The risk is a question of the (metal) species. One arsenic compound can be 10,000 times more toxic than another.

Criticism of animal-based foods

Taking a close look, assessing the risk in a differentiated way and also keeping an eye on the benefits – these principles are important to Tanja Schwerdtle. This means, for example, taking the health benefits of fish consumption into account, which can outweigh contamination by problematic substances. Or taking a closer look at the current trend towards new types of food: "Animal-based foods are currently being criticised – but how do I know that meat alternatives, full of additives, are healthy? How do I know that lupine sausage is safe?"

Even if the advantages of a healthy diet and a sufficient supply of trace elements have to be taken into account, Schwerdtle clearly sees "the other side" as a priority. "I'm a risk assessor," she says. After studying chemistry and food chemistry in Karlsruhe, the Pforzheim native turned to toxicology, the science of toxic substances. Her doctorate in Karlsruhe was followed by positions at the Technical University of Berlin, the Universities of Münster and – since 2013 – Potsdam. Tanja Schwerdtle's other main area of interest has to do with her work as a chemist: the development of replacement models for animal experiments in toxicology.

Further improvement of consumer protection

Schwerdtle appreciates flat hierarchies. She is looking forward to her new role at the BfR, where she has identified an "incredibly strong midfield". She has known this for many years as a member and head of the scientific advisory board. "I love research," she says, "but at my new institute, I also have the opportunity to strategically shape and improve food safety and consumer protection. An important basis for this is the interdisciplinary cooperation between many disciplines, which the BfR offers. "You can learn a lot here and make a big difference," summarises Schwerdtle.

Work and family (husband, daughter and dog) doesn't leave Schwerdtle much time for hobbies, but she does take the time to keep fit. "I run 40 kilometres a week – I can be alone with my own thoughts and even though I am physically exhausted afterwards, I am mentally more relaxed and more communicative," she says.

Evening has arrived and the university has emptied. Schwerdtle sees her guest to the door. We get the impression that the scientist's working week between Parma and Potsdam has not yet come to an end. ◘