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Bavarian High School Girls in Rostock's "Molecular Kitchen”

Hanna and Lena Fries came all the way from Elsenfeld in Lower Franconia - not to relax on the beach, but to spend time in the chemistry lab with their lab coats and safety goggles. At this year's "Jugend forscht" state competition in Bavaria, the two twelfth-graders won the special prize in the chemistry category: a three-week research internship at the Leibniz Institute for Catalysis, LIKAT, in Rostock. Until September 7, they will learn what it takes to tailor substances for catalytic processes - from the idea to the experiment to the analysis. They will gladly give up three weeks of vacation for this.

The three of them won the special prize. Unfortunately, their friend fell ill shortly before the research internship, report Lena and Hanna. Together at the Julius-Echter-Gymnasium in Elsenfeld am Main, twins Lena and Hanna Fries had prepared a catalyst from St. John's wort for their winning project this year, which accelerates chemical reactions when exposed to light. "This is caused by a substance called hypericin in St. John's wort," explains Lena, and Hanna adds, "We wanted to explore how its catalytic activity can be measured."

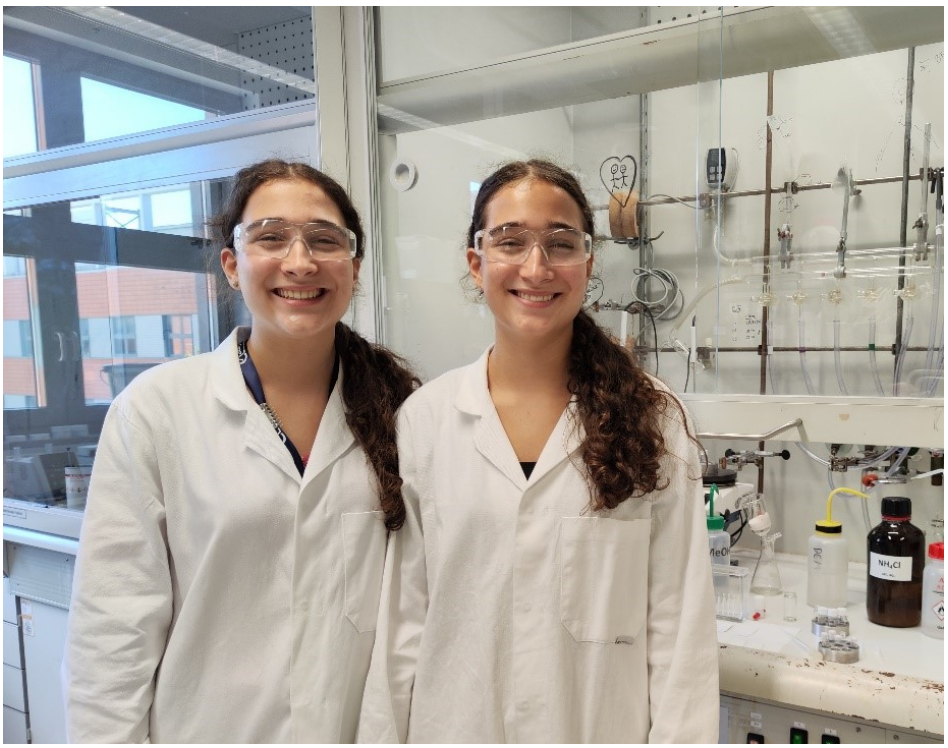

Fig.: Lena (left) and Hanna Fries from Bavaria are conducting research for three weeks at the Rostock Leibniz Institute for Catalysis. (Photo: LIKAT)

Chemistry in Color

Photocatalysis is a hot branch of chemical research. The girls found the idea for such a student experiment in literature. Imagine a small jar filled with a yellow substance that turns blue when exposed to light. "The color indicates that the photocatalyst is active," say Hanna and Lena. But of course it's surprising. And it arouses curiosity. What's happening in the test tube? Among other things, the girls investigated the influence of different wavelengths on hypericin, and they experimented with different dyes.

Beautiful chemistry? For Lena and Hanna, definitely: "Yay!" After all, they spend three weeks of their vacation time not relaxing on the beach, but curious and concentrated in the lab and in front of the monitor. Hanna with Dr. Tim Peppel in the "Photocatalytic CO_2 Reduction" department. Lena with Dr. Ralf Jackstell, who is developing new ligands, which are the molecular protective shells of a catalyst. "Lena experiences real molecular cuisine here," says Ralf Jackstell. With everything that goes with it - right up to the group meeting. Lena: "It's unbelievable what a researcher has to deal with!"

Entry via Biology

Every year, new students get a taste of chemistry at LIKAT. "If we want motivated young researchers, we have to take care of them ourselves," says Dr. Jackstell. He introduced the student internships at LIKAT a good twenty years ago. While studying to become a teacher of math and chemistry, it had already become clear to him that motivation for the subject among adolescents required one thing above all: motivation among the teaching staff. At school and in science.

Hanna and Lena can confirm this. They had always been interested in biology, they report. But their biology teacher was keen to bring the "Jugend forscht" competition to their Julius-Echter-Gymnasium, which is more language-oriented. And he managed to win Hanna, Lena and their friend over to chemistry. "We didn't even have chemistry classes then!" However, an idea that the biological world is based on a lot of chemistry, as shown by photosynthesis alone, the basis of all life.

Already a National Winner in 2022

With their first "Jugend-forscht" project, which was about recovering phosphorus from wastewater, they won the national competition last year. This earned them, among other things, a ticket to the International Youth Research Competition, traditionally held in the USA.

This year, the three of them traveled to Dallas in May, where the world's youth researchers met.

Because they enjoyed the school lab so much over the years, they have now, in their senior year, continued at the state level with a new project. And won a prize again. Hanna and Lena feel very welcome in Rostock. Above all, they are touched by the fact that their interlocutors and "teachers," from the exchange student from Hungary to the institute director, take so much time to explain everything that is new to them. And for the two of them, a lot is new. Hanna: "About CO_2 reduction, for example, I know what it starts with and what comes out of it, but the chemical process here is already very special."

There is still a little time left over for the beach in Warnemünde - after work.

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