

Press Release



BASF supports student experiment to analyze growth behavior of plant cuttings in zero gravity

Kennedy Space Center, Florida, February 20, 2017 — The first school experiment to test if plant cuttings build roots in zero gravity has been sent to the International Space Station (ISS). The trial, designed by Maria Koch, Raphael Schilling and David Geray - three students from an agricultural high school in Ravensburg, Germany - left Kennedy Space Center on board the SpaceX rocket that launched yesterday. To date, experiments conducted in zero gravity have only concentrated on the growth behavior of seeds. If cuttings can be used to propagate plants in space, it would be a significant advance in efforts to supply food for long space missions, such as to Mars.

“We are just hugely excited that we have been able to get our experiment on the ISS” said Koch. “There hasn’t been any research on the effect of zero gravity on cuttings before. This is a once-in-a-lifetime experience.”

For their experiment, the student research team took 15mm cuttings of the plant, *ficus pumila* (climbing fig). This plant fulfills the tough space travel requirements: It is small enough to fit the limited space and resistant to the temperature differences of 4-28°C. Koch, Schilling and Geray carefully planted the cuttings into an agar-based growing medium in a high-tech experiment box, called the AFEx Habitat. After the experiment has been conducted in space, a control experiment will also be carried out on Earth under the influence of gravity.

BASF’s crop protection experts have supported the young scientists with research know-how, scientific consultancy, materials and equipment. To develop the experiment design, the students also completed an internship at the BASF Agricultural Center in Limburgerhof, Germany. As the cuttings will undergo extreme differences in temperature and humidity in space, they need to be protected against bacterial or fungal disease. In this area, BASF has provided both knowledge and products. BASF fungicides, Xemium® and Initium®, are helping to keep the cuttings healthy during the research on the ISS, and on the trip there and back.

“This is the most exciting field trial I have ever been involved in. Working in research has always been about exploring new ideas. But until now, our tests have never left Earth,” explained Dr. Sebastian Rohrer, Early Fungicide Biology at BASF’s Crop Protection division. “BASF’s approach to innovation is based on connecting with others. Working with the students has been a great example of this – young people like these will be the future of innovation in agriculture.”

Koch, Schilling and Geray, who are now studying agriculture, started the “V3PO Project” in 2015, in an after-school science club. The trial will now stay in space for 30 days before returning to Earth for analysis of the results. It is the first school project from Germany to be accepted onto NASA’s education program.

About V3PO

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Calling their project "V3PO" ("Vegetative Propagation of Plants in Orbit"), the three students Maria Koch, Raphael Schilling and David Geray want to find out if plants can be grown from cuttings in space to provide fresh food during space missions. They attended the Edith Stein Agricultural High School in Ravensburg, Germany. In addition to BASF and NASA, other sponsors supporting V3PO include: Dreamup, mymicrogravity, the Federal Ministry for the Economy and Energy, the German Center for Air and Space Travel, the business consultancy inside, Airbus, and the Kreissparkasse Ravensburg.

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