



Where I work Sara Abdou

Photographed for *Nature*
by Francesco Rucci and
Francesco Marinelli.

My interest in flower colour started when I was child growing up in Cairo. I used to paint blue flowers in school, and my teacher always asked why, because most flowers here aren't naturally blue.

Now, for my PhD, at Wageningen University & Research in the Netherlands, I'm studying colour in petunias. In this photo, I'm collecting floral tissue samples from a white petunia to analyse its pigments and the genetics behind them. I'm wearing gloves and using forceps so I don't damage the tissue for the genetic analysis.

White petunias exist in nature, but not bright orange and yellow ones. In 2015, one of my PhD advisers, Teemu Teeri, found an orange petunia growing at a railway station near Helsinki. He discovered that its colour was due to an unauthorized genetic modification, and the sale of such plants came to be banned in some countries.

I was eager to create orange petunias not by introducing a gene from another species, but by fixing the genetic pathway that stops petunias being naturally orange.

The gene-editing technology CRISPR-Cas9 lets me do this by making changes at precise locations in the petunia's genome. It's faster, cheaper, more accurate and more efficient than other genome-editing methods, and it's legal in Europe and the United States.

My work can also be applied to other crops. For instance, golden rice (*Oryza sativa*) contains β -carotene and can benefit people whose diet is lacking in vitamin A, but its use has been blocked in some regions because it is genetically modified. The pigment pathway in petunia should be similar to that of other crops and plant species, so I can apply how I produce orange colours using gene editing to other plants.

Along with my research, I strive to be a role model for girls in Egypt. I was fortunate to receive scholarships to study overseas for my master's and PhD programmes. I want to motivate other female researchers to travel abroad and pursue their research interests.

Sara Abdou researches plants at Wageningen University & Research in Wageningen, the Netherlands. **Interview by Nikki Forrester.**