

Saffron, the world's most expensive spice, is under threat by climate change. Here's how researchers are using genetic modification to build resilience

In order to address climate change impacts on saffron production, particularly the deficit of rainfall, new saffron varieties are needed. Genetic variations or subtle changes in the DNA (in saffron in this case) can help develop new saffron varieties. But saffron reproduces only [vegetatively](#) using corms or bulbs and can't reproduce by generating new seeds (it is sterile). This sterility doesn't allow saffron to have genetic variations as seen in corn or other plants. Saffron cultivated worldwide is the same in terms of biological traits and varies slightly in size and shape depending upon the environment.

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To develop climate resilience, many studies on water adaptation and ideal temperatures for saffron are underway. To understand genetic variability between ecotypes of saffron across the areas of the valley where it is grown, researchers are looking for differences in adaptation to the differences in water availability.

"Currently, we are studying the water resilience of saffron by exposing it to different types of stress to see how plant growth is affected," said Mehraj Ud Din, who opines that unusual rainfall is the primary reason for the decline in yield. "We believe there is a natural genetic variability in saffron in Kashmir. We are looking at which genotypes (varieties) will perform well under stress. If experiments yield any mutant, we study it in a controlled environment to check whether it will work." He believes this may provide an alternative to the disturbed rainfall pattern.

[**This is an excerpt. Read the original post here**](#)