Demand to set limits on genetically engineered organisms

Warning against the uncontrolled spread of synthetic gene constructs in native populations

26 October 2016 / In a joint letter, a number of organisations are demanding that the German government takes action against the uncontrolled spread of genetically engineered organisms. In the letter they focus specifically on so-called gene drives. Gene drives are currently under discussion because their release into native populations might possibly cause the extinction of whole species. Once released, these organisms can cause irreversible damage in ecological systems – and there are no known measures that can be taken to withdraw them from the environment.

Amongst other things, mosquitos, flies and weedy plants can all be manipulated with gene drives leading to their extinction or a change their biological characteristics. Gene drives are created by new methods of genetic engineering, known as CRISPR-Cas. Once inserted, the newly introduced DNA will be transferred homozygously in each generation and therefore spread throughout populations much faster than would be the case with natural heredity. The organisations are calling for the German government to take action at an international level in order to prohibit the release of any gene drives. As a first step, the German minister for the environment, Barbara Hendricks, is being urged to bring up the issue at the next conference of the parties of the Convention on Biological Diversity (CBD), which will take place in Mexico at the end of the year.

“If we allow or even aim to let genetically engineered organisms spread their DNA into native populations, it can be regarded as a 'germ-line manipulation' of biodiversity. This human intervention will impact all future generations of the species concerned as well as their ecosystems,” Christoph Then says for Testbiotech. “The German government should bring this issue to the forefront of the international agenda. Once released, these organisms will not stop at the national borders of any country.”

Several cases of uncontrolled spread of transgenes into native populations have already become evident in the last few years: For example, cotton plants in Mexico, oil seed rape in North America, Japan, Australia and Switzerland and grasses in the US. Beyond that, the DNA from genetically engineered plants has been found to persist in regional seed samples such as Mexican maize and rice from China.

The new methods used in synthetic biology or gene editing are a serious cause for concern. It is expected that in the near future, many more genetically engineered organisms will be purposely created for release. This will increase the likelihood of further cases of uncontrolled spread. In this context, many experts are warning that especially gene drives are associated with a high level of unpredictable risks.

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Further information: The joint open letter (in German) [2]
Report on the meeting of the International Union for the Conservation of Nature (IUCN) [3]
New York Times report that experts are calling for regulation of gene drives in the US [4]
Report of the US National Academy of Science (NAS) [5]

Links
[1] mailto:info@testbiotech.org

[2] https://www.testbiotech.org/node/1742
[3] http://www.boell.de/en/2016/09/23/gene-drives-who-decides-hawaii-and-beyond
[4] http://www.nytimes.com/2016/06/09/science/national-academies-sciences-gene-drive-technology.html?_r=0
[5] http://www.gene-drives.com/gene-drives.pdf