



Fewer and «greener» chemicals to protect biodiversity

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Topics: Drinking Water | Biodiversity | Ecosystems | Pollutants

Work is currently underway in Montreal at the UN Biodiversity Conference (COP 15) to negotiate a framework agreement to preserve biodiversity. In addition to pesticides, nutrients and plastic waste, certain other chemicals ought to be restricted in their production and use, or replaced by less problematic substances, according to a recommendation by a group of scientists, including an environmental toxicologist from Eawag.

Habitat loss and isolation, as well as chemical pollution of the environment, are among the major drivers of biodiversity loss. Now and until December 19, government representatives, researchers and activities are negotiating in Montreal, Canada, on how to reduce threats to biodiversity. The draft of the [Post-2020 Global Biodiversity Framework](#) (framework agreement on the protection of biodiversity from 2020 onwards) contains eight detailed targets and various measures. It also reasons why biodiversity is essential for human survival.

Target 7 calls for better protection of biodiversity against chemical pollution threats. The draft Target 7 developed so far explicitly mentions pesticides, nutrients and plastic waste. A group of researchers is now proposing to widen its scope to include additional problematic chemicals. They also call for limiting the expansion and, where possible, reducing the production and use of chemicals in general, and for promoting the development of less harmful substitutes. These recommendations are based on their article recently published in the peer-reviewed journal "Environmental Science: Advances" that discusses, which chemicals could pose a threat to biodiversity and what could be done about it: "[Policy options to account for multiple chemical pollutants threatening biodiversity](#)".

Target 7 (to 2030)

Reduce pollution from all sources to levels that are not harmful to biodiversity and ecosystem functions and human health, including by reducing nutrients lost to the environment by at least half, and pesticides by at least two thirds and eliminating the discharge of plastic waste.

In particular, the researchers call for the inclusion of persistent mobile substances such as per- and polyfluoroalkyl substances (PFAS); toxic metals and metalloids; non-agricultural biocides; and endocrine disrupting chemicals. In addition, they propose that regular checks be carried out in the future to determine whether any emerging pollutants have been discovered that could threaten biodiversity. If so, these should be integrated as well.

Suggestions for scientifically supported actions

The authors of the technical article not only show which substances and substance groups threaten biodiversity. They also propose three steps that could help reduce these threats:

Limit worldwide production and emission of chemicals: What sounds banal must be differentiated in the implementation: A start must be made with known problematic substances, and for candidate substances life-cycle analyses should be carried out to examine their environmental impacts from production through use to disposal phase. “For the sake of biodiversity, it is about time that certain groups of particularly concerning chemicals be restricted,” says environmental toxicologist Ksenia Groh of the Eawag Water Research Institute. While the knowledge base is clear, it is now up to the negotiating parties in Montreal to act accordingly.

Improve chemicals management: The knowledge about the impacts of chemicals on biodiversity is still insufficient, particularly in the developing countries. However, since many hotspots of biodiversity are located precisely in these countries, special attention should be paid to these regions. In addition – according to the researchers – regulatory processes should be simplified, for example by grouping structurally similar chemicals together. “It must be avoided that a problematic substance is simply replaced by another, equally problematic one, just because it takes too long until sufficient data are available for the second substance,” says Groh.

Developing «safer» chemicals: In the future, new chemicals should be designed from the outset in such a way that they degrade as quickly as possible and do not accumulate in the environment or in the organisms. For chemicals and materials, it should be clarified already before their commercial production starts, how they will behave over their entire life cycle and how negative effects on the environment for which they are responsible can be minimized. This strategy has already been successfully implemented, for example, for new beta blockers in medicine or for some ionic liquids in electrochemistry.

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