

Answers Question 9: What risks do you fear if we add enzymes produced by green algae to the water of the sewage treatment plant to purify micropollutants after the completion of our project?

No

No. I just don't think the proteins will be stable and active for too long.

no!

The aim of the project is to intervene when an artificial intervention such as B. the administration of painkillers has taken place. Actually, it should be reconsidered whether such painkillers are used at all (with this frequency). And here we come to a clear no. Genetic engineering is always well meant, but always intervenes in organisms and has unforeseeable consequences there.

uncontrollable effects on humans, animals, plants and the environment

No

Not a particularly high risk

Possible impairment of drinking and / or groundwater.

"- Release of the genetically modified algae into nature with unforeseen consequences- otherwise no significant risk "

None, because I am sure that you are very careful

"The enzymes could spread uncontrollably and have a negative impact on other areas of the environment. After sensible research and a realistic assessment of the risks and effects, one should still use genetic engineering. "

Enzymes without live GMO should not pose a risk

"I don't know my way around here. First of all, I wouldn't expect the enzymes to have an impact on the genome of the plants and animals that ingest them. But in principle I can already imagine it. Diet (and pollutants in it) can also influence tumors or contribute to their development, i.e. cause mutations in cells. I would probably rely on reliable studies to introduce the concentration and impact on different animal species. "

I don't know the project, I could only speculate here.

This could lead to undesirable side reactions that have not adequately studied consequences. However, if this has been researched and tested conscientiously, I do not see this as problematic.

Insufficient monitoring of long-term impacts on downstream ecosystems

modified organisms that end up in drinking water and have unknown effects on the animal / human body

No

How long is the stability of the enzymes outside of the sewage treatment plant? Could these possibly also have a problematic effect on other organisms, or are there other known side effects? What are the advantages / disadvantages vs. Activated charcoal technology (or even osmosis process), in addition to the cost?

Pandora's box

Formation of metabolites of micropollutants that are not degraded and can be potentially harmful to the environment, animals and / or humans. Enzymes must also be filtered out.

That natural evolution leads to an unintended side effect.

I have to honestly say that at first I have no idea how this relates to genetic engineering. I know far too little about it for that. I assume that the green algae are genetically modified. As far as I know, the approximately 95% purified wastewater is fed back into the rivers and the drinking water is taken from springs. In this way, if the enzymes cannot be removed from the water (that's what I assume, since residues of the birth control pill cannot be completely removed), they would end up in nature and humans. If the whole thing has been researched objectively enough, I see next to no problem, measured against the whole range of substances that are already undesirable in our drinking water, our food (hormone-like substances, nitrate, etc.) and in the air.

I don't know 🤔

No

No

No

no acute risks

"No

Are the enzymes stable enough to survive in the harsh environment and are they still active? "

No.

I do not fear any risks.

No

Intervention in the ecosystem

No

no. That was certainly checked intensively during the project or afterwards. Otherwise it would not be usable

This is difficult to judge as an interested layman, but I would trust your expertise in this area :)

no information

No

No

Genetically engineered green areas could overcome the filter and be released

"So rather less concrete risks (among other things because there is no great reference to the topic). Possibly to the effect that the hoped-for effect, which was examined, is not achieved. Good luck! P. S. the live streams are mega. "

I don't know enough about exactly this area, but as long as the enzymes are specific to the micropollutants and have no side effects for living beings or could harm us if they get into drinking water.

I don't have the know-how to say anything about this. But as a layperson, such a procedure sounds good.

What happens if these green algae spread in an uncontrolled manner outside of the sewage treatment plants and, for example, attack constructions that contain harmful substances in their building fabric and thereby endanger their stability? For example, a plastic-dissolving alga in a swimming lake, on which boats with plastic hulls drive or plastic lifebuoys are used.

No

Enzymes could damage other organisms there / into the groundwater or Drinking water and cause damage there.

That it could be of no use or that there could be side effects that could only become visible after long-term studies.

Can they then be dismantled again?

"Rather low risk, as only enzymes and not GMOs are added (if the filter system works well)
Potentially unexpected reactions by enzymes in real conditions compared to laboratory conditions "

What is the half-life of the enzyme? Can be filtered out?

As long as there is a sound independent risk assessment, I have no concerns.

The implementation should only take place if it is ensured that the green algae are not released.

Enzymes may have a non-specific effect and interfere with the ecosystem

A possible unforeseen mutation of the green algae due to neglected influences, which could lead to a useless or even harmful new type of algae.

No

No

No

I hardly see any risks here

They can be harmful to humans, although it is very unlikely.