

# Editorial

## Wheat Plant can Keep away Microplastic from the Soil

**Environment:** Soil surface is very intensively loaded with micro-plastic as are the world oceans. The trees can help reverse off the environment load. This was discovered now by a team of researchers. The microplastic loaded soil could be restored with the help of trees. Especially the hanging birch trees for this action are suitable because they take the microplastic on the roots during their growth phase. This has been unfolded by the researchers for the first time under the guidance of Leibnitz (IGB) Institute for waste water ecology and fresh water fishing.

Only a little is known, as to how the finest polymer particles at all are integrated with agricultural plants. However, studies have already shown that wheat (corn) can take up microplastic. Now a research team of IGB and of Research Centre for Geosciences (GFZ), Potsdam went in an interdisciplinary outrider project of Berlin art studio Austen. The teams could show that also trees take off and store microplastic for the restoration of contaminated soil, the hanging silver birch trees (*Betula Pendula* Roth) have already been planted. In their tissues they can store the heavy metals and rather industrial defective materials like polychromatic hydrocarbon. Microbes which settle in these trees decompose the load materials. While inclined birches develop root system, the processes directly under the soil surface get observed, the team chose these trees for their researches.

First of all the researchers earmarked plastic globules of 5 µm upto 50 µm size with fluorescent colouring material and they placed these in the soil underneath the trees. 5 months later they investigate root with the help of fluorescent and confocal laser scanning microscope.

The team found fluorescent microplastic in different sections and layers of root system. With that percentage component of root sections with microplastic particles varied between 5% and 17%. “The absorption of microplastic and the sections on the short and long-term health of trees must still be experimented. However this pilot study indicates on that the birch trees have a true potential for long-range solution for soil restoration – including the reduction of quantity of microplastic in soil and as a possibility in water” says Kat Austen, the chief author of the study, manager of the Studio Austen and the IGB project coordinator for the scientific project “Action”.

**Background:** More that 400 million tons plastics are produced every year in the world. About one third ( $\frac{1}{3}$  rd) of that land as refuse, dust synthetic materials and later in soil or in sewage water. Mostly all into ruin of the dust fall to pieces in particles smaller that 5mm and to be worth as microplastic. If the pieces are smaller than 0.1µm, man speaks of nanoparticle.

Also when the microplastic in the world oceans often a theme is the restoration of land is importantly bigger. Experts estimate it according to surrounding 4 to 23 times. However the water plays for the spread of microplastic an important role. So the plastic particles are synthetic dress fibres washed out and land in sewage sludge. In Germany a bigger amount is burnt down. In other countries still these are taken out as manure in the field.

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