Scientists Cultivated Edible Fungi that Feeds on Plastic

Boris Djuric December 30, 2014

Katharina Unger and her partner Julia Kaisingter cultivated a new fungus, which digests toxic waste materials, and is also commonly eaten.

(Newswire.net -- December 30, 2014) -- 'Fungi Mutarium', is an artistically designed incubator for growing fungi that consumes plastic. While digesting plastic material, it multiplies eating more and growing large. So, that might be a solution to a plastic pollution, but there are trillions of tones of plastic waste, what shall we do with so much fungi? Scientists from Austrian University suggest we could eat them.

New research is based on the 2012 Yale University research in which scientists discovered a rare variety of mushroom that could break down polyurethane, a type of plastic. In years that followed, wave of research explored how fungi can degrade plastic without retaining any of its toxicity.

Researchers from Utrecht University in Austria, Unger, believes plastic waste could be turned into food, and with the quantity of plastic waste in the world, there is no shortage of raw material.

Katharina Unger and her partner Julia Kaisingter set up a mini-factory, which they call the Fungi Mutarium, or the FU. It cultivates the mycelium (roots) of two strains of fungi – Schizophyllum commune and Pleurotus ostreatus. Both of these mushrooms can consume and break down plastic, but what is more important, they are regularly eaten by people.

The process may sound simple, however, there are many steps that must be taken before plastic garbage is served for dinner. First, the plastic must be put in an activation chamber where UV light sterilizes it.

Then it is time for FU to multiply fungi and speed up the natural process. The FU fungi growth chamber is an oval shaped pod made out of agar – a seaweed-based substitute for gelatin what acts as a nutrient base for the fungi.

In time, fungi covered in liquid nitrogen dissolves and digests the plastic. This process takes several months; however, researchers are working on optimizing growth conditions, which could accelerate the process.

“They [the fungi] are found throughout the world and can be seen on a wide range of timbers and many other plant-based substrates virtually anywhere in Europe, Asia, the Americas and Australia. They digest toxic waste materials, and are also commonly eaten,” said Unger, as quoted by The Local.

Of course, Unger and Kasinger have eaten the fungi, and say it has a neutral flavor. Now, besides accelerating the process, they also are working on developing conceptual recipes for plastic digesting mushrooms.

Two researchers believe they could push their product in the restaurants worldwide, however the price would be quite expensive due the time FU needs to grow small quantities of fungi.