

#FACT4

BIO-BASED NANOCARRIERS TO TREAT PLANT DISEASES

In BIOrescue researchers at the Max Planck Institute for Polymer Research developed **nanocarriers made of “waste”**, which release drugs in a way that cured a plant disease for the first time.

Two major novelties

Circular nanocarriers made of agricultural residues



Normally nanocarriers are made of polymers based on fossil fuels. Researchers at the Max Planck Institute for Polymer Research developed nanocarriers from agricultural residues for the first time. This makes them a **truly “circular” product**, from mushroom compost to plant cure.

Treating plant diseases that have never been cured before



The nanocarriers have been tested to treat **ESCA**, a fungi disease that affects 2 billion grapevine plants across the world, and for which there has so far not been a cure.

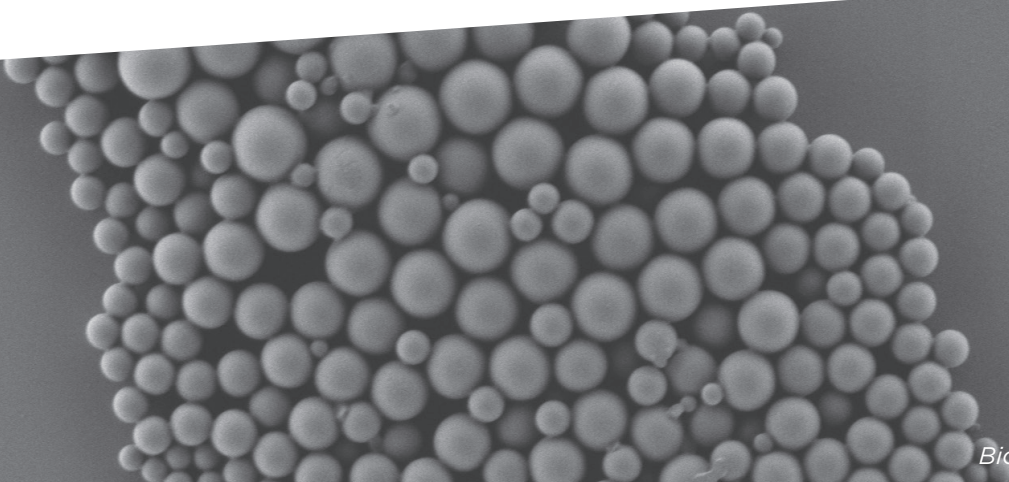
Tests in labs and then on Riesling vineyards in Germany showed a **reduction of the symptoms of the disease**. If the effects are confirmed, the same method can be extended potentially to **any other disease in agriculture**.



Targeted cure



Thanks to the natural enzymatic degradation of the nanocarriers, the drug is **released inside the plant in a controlled and progressive way**. With this effective method the drug **only targets the fungi**, which destroy the plant from inside. Tests demonstrated that these nanocarriers are not toxic for the plants, do not reach the crop and therefore do not affect animals or people.



Bio-based nanocarriers

What are nanocarriers?

*Nanocarriers are very tiny degradable capsules that have been studied for medical applications in the last 30 years. These nanocapsules are considered the “**magic bullet**” to cure human cancer, because they discharge the drug*

directly to the targeted cells. In BIOrescue, the researchers at the Max Plank Institute investigated the possibility of transposing the same principle to cure plant diseases.



Read more here

<http://bit.do/nanocarriers>



www.biorescue.eu



@BIOrescue_BBI

Contact :

Frederik Wurm

Max Plank Institute for Polymer Research

wurm@uni-mainz.de

MAX PLANCK INSTITUTE
FOR POLYMER RESEARCH



Horizon 2020
European Union Funding
for Research & Innovation

The BIOrescue project has developed a new biorefinery concept to demonstrate the production of high-value value products from used mushroom compost and other underutilised feedstocks. It has received funding from the Bio-Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme, under Grant Agreement N°720708.