BioBoost
Accelerating biobased horticulture

Acoustic panels from mycelium and tomato stems

Description

Startup Fungalogic focuses on creating building materials out of agri- and horticultural waste streams, using fungi to grow these material streams into insulation materials. They grow mycelium, the ‘root system’ of mushrooms, on the waste streams, connecting all loose particles; essentially using the mushroom’s roots as ‘glue’ to create new material.

Due to the presence of the mushroom roots, the material has good thermal- and acoustic insulating properties, is fire-retardant and lightweight, making it a suitable, circular and bio-based insulation material.

Together with SIGN, Stichting Innovation Glastuinbouw Nederland, they developed acoustic insulation panels made from tomato stems, hemp and mycelium. Due to the acoustic performance of the tomato stem based mycelium panels, the panels are a perfect material to absorb noise from telephone conversations within an office for example.

As a showcase they've designed two circular phone booths in which they've placed the developed panels.

With their developed process Fungalogic is trying to close Dutch material loops.

They're always looking for new partners with fibrous waste streams or potential applications for mycelium materials, and are open for new ideas or to give more information. Don’t hesitate to contact them!

Crop	Tomato *Solanum lycopersicum L.*
Croppart	Stem
Application area	Materials
Status	Start-up stage
Public availability	Semi-public
Relevant plant compounds	fibers

Examples of end products

Mycelium based modular telephone booth

Together with SIGN, Stichting Innovation Glastuinbouw Nederland, they developed acoustic insulation panels made from tomato stems, hemp and mycelium. As a showcase they've designed two circular phone booths in which they've placed the developed panels. The phone booths consist of a number of circular materials: The structures are made of milled wood, Ecoboard panels and Ecor panels. The furnishing is made of recycled Efteling uniforms with a padding of recycled jeans. Both concepts contains living plants to contribute to the health and lower stress at the work environment where they are placed. This concept expresses modularity and ease of relocation/reuse.

Mycelium based telephone booth

Together with SIGN, Stichting Innovation Glastuinbouw Nederland, they developed acoustic insulation panels made from tomato stems, hemp and mycelium. As a showcase they've designed two circular phone booths in which they've placed the developed panels. The phone booths consist of a number of circular materials: The structures are made of milled wood, Ecoboard panels and Ecor panels. The furnishing is made of recycled Efteling uniforms with a padding of recycled jeans. Both concepts contains living plants to contribute to the health and lower stress at the work

environment where they are placed. This concept invites the user to lean on the wall while calling.

Pros and cons

- possibility to turn local waste streams into valuable products
- create awareness about the opportunities of bio-based materials
- More sustainable alternative for conventional insulation materials with large environmental footprints
- durability of the product is not yet known
- Pasteurisation of the material during the production process requires a lot of energy, which can only be reduced by economies of scale
- Conventional methods in the building sector need to be transformed in order to apply this material

---

Used conversion methods

Mechanical-Physical processes

Milling

Biochemical processes

Aerobic/ Anaerobic fermentation

Resources

http://www.fungalogic.nl Initiative website