



*Milena Stavric
and her team*

Fungi as Master Builder

Milena Stavric wants to completely rethink building materials. She conducts research into how mycelium can be used in the construction industry and replace environmentally harmful substances.

Birgit Baustädter

“Mycelium is said to be the largest organic plant of all,” says Milena Stavric enthusiastically.

Mycelium is the fungal network that spreads in our soil and other organic substrates. It is the growing part of what we know on the surface as fungi. “A very good friend of mine is an expert in this field and her work has always fascinated me,” says Stavric. As an architect herself, Stavric is primarily concerned with sustainable building materials and wood, but was put off by the amount of environmentally harmful plastics that were still necessary. So she wanted to change something very fundamental. “I believe that it is not enough to improve a little here and optimise a little there,” she says with conviction.

“We have to completely rethink building materials.”

The researcher has been investigating how mycelium can be used to strengthen clay. Clay – a well-known and well-proven building material – is 3D-printed and then a nutrient medium and the mycelium are added. “We call this process inoculating.” The mycelium can grow in the desired direction and in the desired thickness and thus either reinforce the structure or create porous structures. The goal is to achieve a completely new, sustainable construction method. “The wall can be made of clay reinforced with the mycelium. Then comes an insulating layer of clay, which

is porous. The mycelium is introduced first and then the clay is fired – pores are created where the mycelium was before,” she explains. And the wall is sealed on the outside with a protective layer, for example of alginate – another natural material being researched at the institute.

NEXT STEP

Research is currently focusing on the fundamentals. The printed results are small but impressive. The biggest challenge on the road to implementation is scalability – how can the method be transferred from a clean laboratory to a dirty and sometimes unpredictable construction site? “We are currently starting a project funded by the Austrian Science Fund where we want to address this problem, and where we are also working with geoscientists to further investigate which clay mixtures are suitable for printing. We are thinking of working with clay from Lake Neusiedl, for example.”■

