PROTECTION AGAINST FUNGAL PARASITES

MycoSolutions

Empa
Materials Science and Technology

Problem – Challenge

There are half a million wooden telephone poles in Switzerland. They are easy to erect and last up to 35 years without the need for any major upkeep. However, Swisscom has to replace as many as 5'000 poles a year for its landline infrastructure – many because fungi have caused them to rot. Although the poles are impregnated with biocides such as copper, such biocides are ineffective if copper-resistant fungi transform the copper using oxalic acid and then destroy the wood – resulting in the poles needing to be replaced far sooner than planned. In nature, fungi keep each other in check. In a forest this works by itself, a fungus that destroys wood has an antagonist that stops it in its tracks. In the case of wooden constructions and trees that are planted or erected outside their natural habitat, however, this equilibrium spirals out of control and the pest can spread unimpeded.

Solution

Francis Schwarze, a wood, tree and fungus researcher at Empa, has discovered a means to protect the wooden poles against copper-resistant fungi: if deployed early enough, another fungus, a natural adversary of wood decay fungi, is able to inhibit the formation of oxalic acid and kill off the pole destroyers. First of all, Schwarze set about isolating and identifying the harmful organisms on the tree. Then all he had to do was "simply" find a natural adversary and turn it into a product – granules – which tree surgeons could scatter in the soil around the trees' stricken roots. And so Schwarze founded a spin-off in St. Gallen with backing from Startfeld, the innovation network of the St. Gallen region. The fledgling company, MycoSolutions, is looking to develop product from beneficial organisms.