



A fungus trap catches airborne spores on an adhesive strip • Photo Bo Briggeman

Collecting fungi

An estimated 200 people a year die from an infection of the fungus *Aspergillus fumigatus* in the Netherlands. The threat is increasing because the fungus has built up some resistance to azoles, the compound most commonly used to treat fungi. Now WUR researchers have started the citizen science project Schimmelradar ('fungal radar') to map that resistance.

Aspergillus fumigatus is found in the air everywhere, says Eveline Snelders. 'We breathe this fungus in every day. That's not a problem for healthy people, but people with a weaker immune system do run a risk if they breathe in the fungus. The most deadly form of infection is invasive aspergillosis, fungal growth in the lungs, which can spread to other parts of the body.'

'Resistance has spread from agriculture. This study aims to map that spread'

Azoles inhibit the fungus. But now the fungus has found a way round it. The first resistant variant was found in 2007, and it spread rapidly around the world. Snelders got her doctorate in Nijmegen in 2012 for research on the mechanism underlying that resistance. Further research in the years that followed identified the reason for the resistance: widespread use of azoles in agriculture.

'*Aspergillus fumigatus* thrives in warm,

steaming piles of compost made up of farm waste,' explains Snelders. 'That compost contains traces of the azoles used in farming. The fungi are essentially selected for resistance in the compost piles. The resistance then spreads from agriculture to other places. This study aims to map that spread.'

Fungus trap

To do this, she is calling on the general public. Ordinary citizens can help by setting a fungus trap. It contains adhesive strips that catch passing airborne spores. Members of the public are being asked to hang up a trap outdoors near their home for four weeks, and then send in the adhesive strips. 'We will cultivate the colonies further and investigate whether they are resistant.'

You can't see the fungal spores on the strip. 'You can only see the colonies after we've cultivated them,' explains Snelders. 'But they really are there. We did extensive tests and one strip will definitely have 100 to 150 colonies of this fungus. We use

a highly selective medium for cultivation to make sure we don't get a load of other bacteria and fungi growing as well.' In addition to mapping the spread of resistance across the Netherlands, Snelders also wants to get a picture of the various mutations. 'We find resistance in 4 per cent of fungi in the air, in 10 to 20 per cent among hospital patients and in almost 100 per cent in some hotspots. But is that the case everywhere? And can we identify the sources of this resistance? That is what we want to know.' Snelders and her PhD students Bo Briggeman and Hylke Kortenbosch of the Genetics chair group will be allocating some 300 traps to people spread across the country. The application process kicked off last weekend. Selected participants will get a message around 22 September, after which the packages will be shipped to them. Measurements can start in October. Participation is free of charge. RK

More info: schimmelradar.wordpress.com