

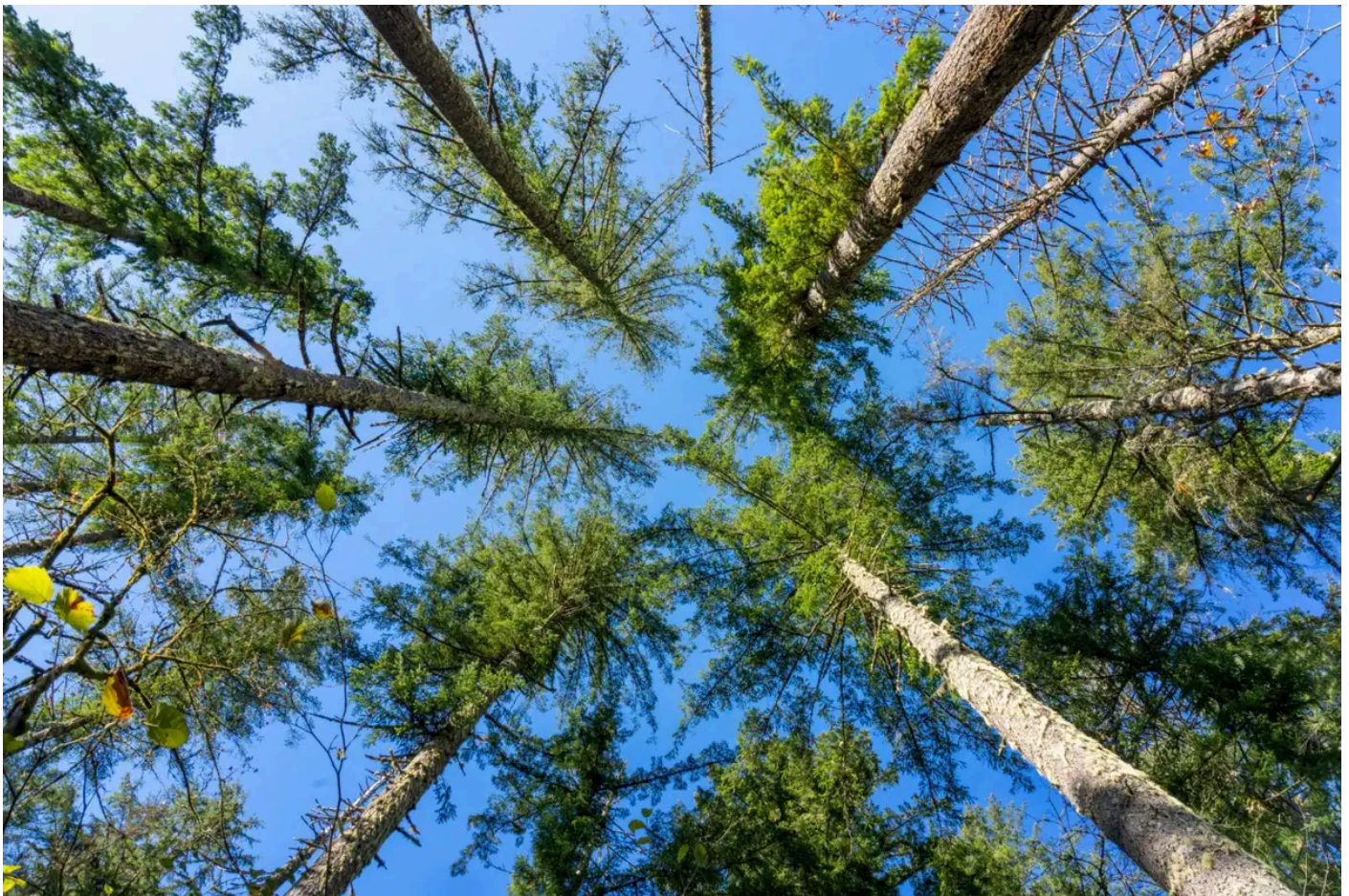
**Technology**

# Slices of wood can filter bacteria and microplastics from water

Water filters made from untreated wood can remove more than 99 per cent of particles, taking out many harmful bacteria and microplastics

By [Matthew Sparkes](#)

📅 18 April 2025




## ▲ Douglas fir wood can be turned into a water filter

Janet Horton / Alamy Stock Photo

Slices of wood can act as water filters that remove bacteria and microplastics with more than 99 per cent efficiency, potentially offering a cheap way to protect people from water-borne illnesses.

Previous research has investigated more complex methods to make wooden filters involving [complex chemical treatments](#) [/article/2212346-a-super-thin-slice-of-wood-can-be-used-to-turn-saltwater-drinkable/](#), but these would be impractical in

lower-income countries where water-borne illnesses cause hundreds of thousands of deaths a year, say [Antoni Sánchez-Ferrer](https://www.ls.tum.de/hfm/mitarbeiter-uebersicht/sanchez-ferrer-antoni/)  <https://www.ls.tum.de/hfm/mitarbeiter-uebersicht/sanchez-ferrer-antoni/> and Jenifer Guerrero Parra at the Technical University of Munich, Germany.

Aiming to find a way to make more accessible water filters, they tested discs of wood that were 5 centimetres in diameter and 1 millimetre thick. The discs were effective at removing particles around 100 nanometres and upwards – enough to catch many microplastics and bacteria such as *Escherichia coli*. While some smaller pollutants such as viruses may still be able to pass through, the simplicity and low cost of wooden filters could still save many lives, say the researchers.

Wood is made up of xylem vessels, which transport water from the roots of trees to the leaves. Each vessel is only millimetres or centimetres long, but water can pass into neighbouring vessels through small holes in their walls called pits. It is these pits that allow wood to act as a filter, says Sánchez-Ferrer. “It’s quite a smart system. They have this kind of net, which naturally works as a sieve,” he says. “We’re taking advantage of this.”

The researchers tested slices of yellow poplar (*Liriodendron tulipifera*), European beech (*Fagus sylvatica*), Douglas fir (*Pseudotsuga menziesii*) and silver fir (*Abies alba*). Two were clear leaders: European beech removed 99.7 to 99.9 per cent of nanoparticles and silver fir removed 99.3 to 99.7 per cent. But water flowed quicker through beech wood, so it was the researchers’ preferred choice.

“The beauty of the system is that the only thing you have to do is to go to the forest, chop a tree, dry it. And then from here, you just cut the slices,” says Sánchez-Ferrer.