

Older filters, fresher water

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Scientists in Australia have discovered that the older the water filter the better when it comes to reducing the off-putting earthy taste of some tap water. Writing in the Inderscience publication International Journal of Environment and Waste Management, the team explains how bacteria that grow on particles in a sand filter effectively extract the compounds that produce the taste.

Natural earthy and musty smells in our drinking water are not usually a health risk, but many consumers prefer a fresher taste. This represents an ongoing challenge to the water companies.

"Although adverse odors do not present a risk to human health, their presence often leads to a misconception that the water is unsafe for drinking," explains Gayle Newcombe, Research Leader at the Applied Chemistry Unit of the Australian Water Quality Centre in Salisbury, South Australia.

She and her colleagues have investigated the effect of sand filters in extracting the most common earthy molecules, geosmin and methylisoborneol, from the water supply. These two compounds occur naturally in water and are non-toxic.

Newcombe and her colleagues at the Australian Water Quality Centre and Bridget McDowall in the School of Chemical Engineering at The University of Adelaide have now demonstrated that they can remove geosmin and MIB using biologically active sand filters. In such filters, the particles of sand are allowed to accumulate a biological film of

beneficial bacteria that absorb and break down the biodegradable odor molecules.

The team tested sand filter material taken from working water treatment plants. They found that sand taken from a 26-year old filter had a well-established biofilm and was able to remove any detectable traces of geosmin and MIB in less than two weeks. Fresh filter sand with no biofilm, in contrast, was essentially ineffective, removing less than two-thirds of the geosmin and MIB even after several months of operation.

The team is now investigating how to accelerate the development of active biofilms for water purification.

Source: Inderscience Publishers

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