

Kitchen Sponges Are Great Bacterial Incubators



By Ruth Kava — August 1, 2017



bacterial Incubators

The next time you reach for your handy kitchen sponge to mop up a spill on the countertop, remember the message in a recent [article](#) [1] in *Science Reports* entitled "Microbiome analysis and confocal microscopy of used kitchen sponges reveal massive colonization by *Acinetobacter*, *Moraxella* and *Chryseobacterium* species," and perhaps reconsider your move. That's because what this report tells us is that used kitchen sponges are typically chock full of bacteria — some of which can cause disease.

To be honest, this isn't really new news — we've known for quite a while that sponges can harbor microbiological threats. That said, we certainly don't mean to scare you from using your sponge, or imply that you are likely to get sick from it. The interesting aspect of this study is how it was done.

The researchers were able to identify the bacteria in the sponge without ever growing the bacteria — a method known as "culture-independent." Taking advantage of DNA purification and sequencing techniques alone, the bacteria went directly from the sponge to the sequencer. By skipping the (previously required) step of growing the bacteria on a plate or in a tube, they were able to obtain a much larger sample of bacteria present in the sponge. If they had tried to grow the bacteria in the lab, they would not have been able to replicate the necessary growing conditions for all of the bacteria and would have inevitably lost some bacterial species in that step. By removing that step, a much more comprehensive array of bacteria could be obtained.

The investigators, led by Dr. Massimiliano Cardinale from the University of Giessen, Giessen, Germany, identified and characterized the bacteria in 14 used sponges.

They used rRNA gene sequencing to identify the bacteria and determine their taxonomic linkages, and also explored the spatial distribution of bacteria on 14 sponges themselves.

There were mostly bacteria of the Gammaproteobacteria class within the collection of bacteria. Also, two types, *Chryseobacterium hominis* and *Moraxella osloensis* were dominant in sponges that had been sanitized.

Bacteria were widely distributed in the sponge tissue, particularly in internal cavities and on the sponge surfaces. The authors characterized the sponges as “microbiological hot spots,” with the ability to both collect and spread bacteria — most concerning, of course would be those with a pathogenic potential such as *Salmonella* and *E. coli*.

The authors didn't discuss how the sponges were cleaned, so this particular study was primarily important because of the new techniques that would make identification of bacteria more complete and hopefully faster than trying to grow them in cultures in the lab.

Others, however, have looked at the issue of [how best](#) [2] to clean sponges, and found that heating wet sponges in the microwave, putting them in the dishwasher (with the heated drying cycle on), soaking in a bleach solution (the most effective), soaking in full-strength vinegar or ammonia would also work well, while the least effective method was running them through a clothes washer.

So take a look at your sponge and consider how recently it's been sanitized, and repeat once per week with the method of your choice.

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Links

[1] <https://www.nature.com/search?q=sponges>

[2] <http://www.goodhousekeeping.com/home/cleaning/a18731/how-to-clean-a-sponge/>