

New findings on Mother Earth's earthy scent

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That evocative "earthy" scent of the soil returning to life in spring — and nasty earthy tastes and odors in fish and drinking water — actually results from two substances released by soil bacteria. Researchers in Rhode Island now report identifying how one of these substances forms, an understanding that could lead to improvements in the quality of water and food products. Their study, the first substantial research on the topic in 30 years, is scheduled for the July 23 issue of the weekly *Journal of the American Chemical Society*.

In the new study, David E. Cane and Chieh-Mei Wang point out that these two substances, geosmin and methylisoborneol, are volatile organic substances produced by certain soil bacteria. Although they are not harmful to health, these substances are difficult to remove from food and water products. The researchers recently identified the mechanism by which geosmin forms, but little is known about how methylisoborneol forms, they say.

To find out, the scientists studied the formation of methylisoborneol from *Streptomyces coelicolor*, a common soil bacterium. They found that that the substance is formed in an assembly line process directed by two recently discovered genes. A better understanding of this process could lead to new ways to prevent the formation of the odor-causing substance and may lead to consumer products with improved taste and smells, the researchers suggest.

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