

Indoor Air Pollution

By

By Scott Hininger
University of Wyoming
Cooperative Extension Service
Sheridan County
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Is Your Home's Air Unhealthy? House plants, can remove harmful indoor airborne contaminants, along with providing us oxygen and aesthetics, along with some useful humidity. Research suggests certain plants can remove dangerous airborne contaminants commonly found in homes. The contaminants plants can remove from the air include harmful volatile organic compounds such as benzene, toluene, octane, alpha-pinene, and trichloroethylene (TCE), the researchers say in a study published in the August issue of HortScience. Plants outdoors also perform similar functions.

Of 28 indoor plants tested, Stanley Kays, PhD, of the University of Georgia and his horticultural team identified five "super ornamentals" that had the highest rates of contaminant removal, a process called phytoremediation. These are the red ivy (*Hemigraphis alternata*), English ivy (*Hedera helix*), variegated wax plant (*Hoya cornosa*), asparagus fern (*Asparagus densiflorus*), and the purple heart (*Tradescantia pallida*), the study says.

The scientists placed the plants in glass, gas-tight containers, exposing them to common volatile organic compounds found indoors. And the plants did a good job of removing the airborne contaminants. Researchers say there may be thousands of plants capable of removing airborne contaminants.

Volatile organic compounds are likely wafting about in every house. They're given off by home furnishings, carpets, plastics, cleaning products, building materials such as drywall, paint, solvents, adhesives, and even tap water. The pollutants have been linked to many illnesses, including asthma, cancer, and reproductive and neurological disorders according to the World Health Organization.

Air inside homes and offices is often a concentrated source of such pollutants. No one yet knows why some plants are effective at remediation, but Kays and other scientists are digging for answers.

Scientists also want to determine the species and number of plants needed in a house or office to neutralize problem contaminants. The idea that plants take up volatile compounds is

not as much of a surprise as the poor air quality measured inside some homes.

There is no affordable way for average consumers to determine the air quality of their homes. Not all volatile organic compounds are toxic, and that some plants emit toxins, too. However, placing some common ornamentals indoors has the potential to improve air quality. In reality, you are much more in danger from these compounds inside than outside. All houses have these compounds. Even computers give them off. It would be advantageous to have some plants in your house. They also provide humidity, which is helpful during Wyoming's winters. However, there is no magic list available at this time. There might be some plants that are good with one chemical but not others.

I hope that in a few years there will be an affordable test that can alert people to the contaminants in their homes, and a list of the best plants to help clean the air. Scientists in Korea are substantially ahead of us in phytoremediation research, Kwang Jin Kim, PhD, of the National Horticultural Institute in Seoul, has evaluated the ability of 86 species to remove indoor formaldehyde.

Now with the holiday season, there are several good reasons to give houseplants to someone you care about. I have always had houseplants even when I was in college. I believe the more and different varieties of plants you have in a home not only adds to the atmosphere of the home but also helps mentally by relieving stress since plants have a therapeutic and calming effect. In wintertime, I also like to add some color so keep that in mind for the holiday season when you are looking for plants. Also, consider plants that can be transplanted outdoors next spring. I would not get too concerned about getting specific plants at this point; just try to include more houseplants into your indoor living environment.

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