



April 21, 2004

## Clearing the Air

by Marie Hofer, Gardening editor, HGTV.com

The peace lily waited for me on the front step, and I brought it into the house with mixed feelings. Short of space and already living cheek to jowl with dozens of other seedlings and houseplants, I couldn't imagine where we were going to put it. It was a particularly lusty specimen, a gift from a car dealer to thank me for relieving him of a used car. I parked the plant in an out-of-the-way corner, a place where things typically get forgotten.

But this plant was far from ordinary. The first thing it did--in the space of what seemed like only a few weeks--was to double in size. The second thing it did was develop a personality, maybe somewhat on the hysterical side. We left town for a day and when we returned, the peace lily had swooned. Somewhat like a Victorian princess getting the "vapors," it had shown its displeasure at being short of water by releasing turgor in every single leaf; normally upright, the plant cascaded like a river of leaves over the sides of the pot. I watered it, and within an hour, the plant was back to normal.

The third thing it did--or I imagined it did--was to help make us

feel good. I'd moved the plant (now quite large) next to the computer, where my husband and I both spend a lot of time. Eventually I noticed that we seemed to sneeze less, complain a little less of eye irritation and generally feel a little more comfortable.

And maybe we did, for all kinds of reasons that science has already quantified. In 1980 scientists at the John C. Stennis Space Center in southern Mississippi found that plants can purify air. B. C. Wolverton and his team measured the effects of various houseplants on the presence of volatile organic chemicals (VOCs) including formaldehyde, benzene, trichloroethylene and xylene.

It turned out that a number of plants, including the peace lily, are pretty good at absorbing VOCs, translocating the chemicals to their roots and breaking them down. A worthy deed, since formaldehyde and/or numerous other VOCs are a natural byproduct of many of the ingredients of modern life--plywood, particleboard, carpeting, synthetic fabrics and plastics, to name the most common. Even higher on Wolverton's good-plant list were the areca palm, lady palm, rubber plant, English ivy, Boston fern. The spider plant, which has often been linked with

air-purifying properties, wasn't quite as efficient.

Wolverton found that one of the factors influencing VOC-removal rate has to do with the rate of transpiration--that is, how much water evaporates from a plant's leaves. As the plant absorbs water through its roots, air is pulled into the root zone, where microorganisms facilitate the breaking down of the chemicals into sources of food and energy. That would help account for why the peace lily, which thirsts for a lot of water, is so good at what it does.

Still, the best of the air-cleaning plants can remove 1,000 to 1,800 micrograms of VOC per hour, the studies show, but that equates to less than two milligrams of bad stuff. Can people actually tell the difference? A Norwegian study found that office workers whose spaces had plants reported 23 percent fewer complaints of fatigue, stuffy noses, coughing and eye irritation than workers who had no plants nearby. No doubt helping alleviate discomfort was the fact that plants also increase the humidity level of a room to a more comfortable 30 to 60 percent.

Science has also been busy measuring some intangibles. A Texas study showed that workers are better able to solve problems and think of new ideas when plants are

around. A Washington State University study found that people who performed a stressful computer task had 12 percent quicker response times and lower systolic blood pressure when plants were around. In fact, in some cases plants don't have to be immediately present; hospital patients recover a little faster from surgery and require less pain medication with just a view of a garden.

But that's another story. There are plenty of studies showing that people often report feeling less stressed when there are only pictures of plants or nature around. What tangible things do plants do when they're present? Studies have shown that people feel more attentive, think a little more clearly and possibly even more innovatively, when plants are around. They report feeling less stressed.

### **Air Cleaners at Their Best**

If you want to help freshen your indoor air, here are some points to keep in mind:

Plants aren't a panacea. You can't offset the effect of polyurethane with even two dozen areca palms. Plants, no matter how many you have or what kind, are no substitute for good ventilation and, more important, eliminating or reducing the source of the pollution whenever possible.

Plants aren't powerful vacuum cleaners that suck contaminants from across a large room. Put them near where you spend a lot of time - by your computer, in the kitchen, beside a comfortable chair.

Keep your houseplants as vigorous as possible. The healthier they are,

the better job they'll do at reducing air pollutants.

### **Great Green Air Cleaners**

Areca palm (*Chrysalidocarpus lutescens*)

Lady palm (*Rhapis excelsa*)

Bamboo palm (*Chamaedorea seifrizii*)

Rubber plant (*Ficus elastica*)

Dracaena 'Janet Craig' (*Dracaena deremensis* 'Janet Craig')

Pygmy date palm (*Phoenix roebelenii*)

Fig 'Alii' (*Ficus macleilandii* 'Alii')

Boston fern (*Nephrolepis exaltata*)

Peace lily (*Spathiphyllum* sp.)

Corn plant (*Dracaena fragrans*)

Golden pothos (*Epipremnum aureum*)

Florist mum (*Chrysanthemum morifolium*)

Gerbera daisy (*Gerbera jamesonii*)

### **For more information:**

This great little book describes the care and culture of 50 plants that can help purify the air in your home or office, rating the plants on how well they remove chemical vapors, how easy they are to care for, etc.:

*How to Grow Fresh Air* by B. C. Wolverton