Plants as Air Purifiers in the Home and Office

Sue Flinders-Adams, Master Gardener

Gerbera Daisy

In the winter we spend most of our time indoors. The cleansers and chemicals we use along with the other materials in our houses and workplaces can actually pollute the air we breathe. We can improve our indoor air quality by bringing in houseplants which absorb pollutants.

Plants in the home or office can filter out toxins, stale air, pollutants, harmful viruses, and mould spores. The more indoor plants you have, the cleaner your air will be. But you don't need to turn your home into Jurassic Park.; all you need is two or three plants for every 100 square feet of living space.

Some homes and offices have indoor air quality problems caused by Volatile Organic Compounds (VOC's). Some of the causes are; photo copiers, office furniture, computers, printers, carpets, glues, and white out. Many cleaning agents may also contribute to poor air quality. All plants clean the air. In the process of photosynthesis the plants take in the carbon dioxide we exhale and give off oxygen. A NASA study revealed that some plants have the ability to filter out Volatile Organic Compounds.

Silver Queen (Chinese Evergreen)

Marginata Dracaena

Janet Craig Dracaena

Snake Plant

Warneckei Dracaena

Bamboo Palm

The list below provides air-improving plants for three of the most common indoor air pollutants: benzene, formaldehyde and trichloroethylene.

Compiled from Guelph University Master Gardeners Course binder and NASA Plant Study website

To see the complete report go to:
http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19930073077_1993073077.pdf

Chemical	Potential Health Effects	Plants to Filter the Chemical
BENZENE It is a commonly used solvent and is also present in many basic items including gasoline, inks, oils, paints, plastics and rubber. It is used in the manufacture of detergents, explosives, dyes, and pharmaceuticals.	It has long been known to irritate the skin and eyes. It may be a contributing factor to chromosomal aberrations and leukemia in humans. Chronic exposure causes headaches, appetite loss, drowsiness, nervousness, psychological disturbances, anemia, and bone marrow disease.	• Bamboo Palm • English Ivy • Gerbera Daisy • Dracaena *warneckei* • Dracaena *Janet Craig* • Snake Plant • Peace Lily • Pot Mum • Silver Queen (Chinese Evergreen) • Dracaena *marginata*
TRICHLOROETHYLENE It is primarily used in the metal degreasing and dry-cleaning industries. It is also in printing inks, paints, lacquers, varnishes and adhesives.	The National Cancer Institute (USA) considers it to be a potent liver carcinogen.	• Dracaena *warneckei* • English Ivy • Gerbera Daisy • Peace Lily • Pot Mum • Green Spider Plant • Dracaena *Janet Craig* • Philodendron • Bamboo Palm
FORMALDEHYDE It was found in urea-formaldehyde foam insulation (now banned), plywood, particle board, pressed wood products, water repellents, fire retardants, adhesive binders in floor coverings, and carpet backing. Another common source is cigarette smoke.	It irritates the mucous membranes of the eye, nose, and throat; it can cause allergic contact dermatitis. Exposure to high levels causes Irritation of upper respiratory tract and eyes, and headaches It can cause asthma and is suspected of causing a rare type of throat cancer.	• English Ivy • Gerbera Daisy • Snake Plant • Green Spider Plant • Dracaena *Janet Craig* • Bamboo Palms • Boston Ferns • Philodendron • Aloe Vera • Dracaena *marginata*

A few tips to keep your Green Machines well tuned to do their job efficiently

WATERING: The rule of thumb when watering indoor plants is to water only when the top inch of soil becomes dry. Give the plants a good soaking, enough so that water pours from drainage holes. Don't water again until soil surface becomes dry. This watering technique helps to leach fertilizer salts out of the soil. Salt build-up is often responsible for browning leaf tips on many plants, especially palms and spider plants.

Over-watering indoor plants can cause problems. Not only can you kill the plant, you also invite mold to form on the top of the soil. Worse yet, soggy soil attracts fungus gnats, irritating little flies that feed on moist, decaying potting soil. In high humidity climates such as ours it is best to maintain house plants in a potting soil that is not too heavy with peat moss.

BATHING: Once a month give your plants a good hosing down, either outside or in the shower. Be sure to wash the undersides of the leaves as well.

Removing household dust from the foliage allows the plants to "breathe" better. It also helps prevent infestations. Palms especially need their leaves washed regularly to deter spider mite infestation.

DON'T SHINE THEM: Do not use leaf shines of polishes to brighten up plants. These preparations clog the stomata, or leaf pores. Plants need to breathe in order to photosynthesize. If you keep plants well-fed and bathed they will produce their own natural glow.

DRAFTS: Do not place indoor plants, especially palms, near drafty doors or windows. Pests like aphids, spider mites and mealy bugs easily blow in with the wind.

INSPECT REGULARLY - Every other week or so take a look at the undersides of leaves and the growing tips of your plants. Spider mites cause mottling or stippling of leaves. Aphids congregate at the growing tips and undersides of leaves.

If plants begin to develop stickiness on the leaves, suspect aphids or scale, a regular spray of worm juice making sure you get under the leaves should do the trick.

Source: Teresa Rutherford - Compost Happens

FERTILIZING: (master gardeners recommend . . .) The fertilizing program is directly related to light intensities, and, hence, growth levels. When first purchased, because of a relatively high nutrient level in the growing media, plants should not require any fertilizer for three months (unless obvious nitrogen deficiencies occur). After this time use a 20-20-20 or 15-15-15 fertilizer at the recommended rate during high light intensity periods (i.e. March to October) with a reduction of the application by one-third to one-half during the winter months.

Ficus benjamina - weeping fig