

Natural, Eco-Friendly and Anti-Pollutant Houseplants

Indoor air pollution is fast becoming a grave environmental risk to public health. The term “building-related illness” has been coined to describe afflictions such as bronchitis, asthma, etc. that can be traced to specific airborne contaminants in buildings. Besides, many other hazardous substances generate pollution indoors.

Modern homes and office buildings commonly trap pollutants like *benzene, formaldehyde, a ubiquitous chemical found virtually all indoor environments, trichloroethylene (TCE)*, etc.

A 2-year study conducted by the US the National Aeronautics and Space Administration (NASA) and the Associated Landscape Contractors of America (ALCA) shows that some common plants help reduce the rising levels of indoor air pollution and combat the “sick building syndrome”.

According to the US EPA (Environmental Protection Agency), indoor levels of pollutants may be up to 100 times higher than outdoor pollutant levels and have been ranked among the top five environmental risks to the public.

The study of NASA found that there were specific plants that were most effective at removing benzene, formaldehyde, trichloroethylene, xylene, and ammonia from the air – harmful chemicals that have been linked to health effects like headaches, dizziness, nausea, and eye irritation.

How Plants Clean the Air

Most indoor plants have very high rates of photosynthesis which allow them to grow in very diffuse light, because generally they grow under the shade of the canopy of forests. This feature also allows them to grow indoors. The leaves, roots, soil and micro-organisms work together in a symbiotic relationship to remove pollutants.

Air pollutants are removed from the air by being absorbed through tiny pores in their leaves. They are moved through the plant, to the root zone, where they are broken down by soil microbes. Some chemicals are broken down by the plant’s own biological processes. They purify and renew stale indoor air by filtering out toxins, pollutants and the carbon-di-oxide we exhale -- replacing them with oxygen.

So, with the right selection of indoor plants, we can continuously purify the air, day and night!



Which Plants Work Best

Ten out of 50 such houseplants ranked by NASA are discussed below:

Aloe Vera - *Aloe barbadensis*, Ghi Kanvar

Aloe vera is a succulent plant species. It cleans the air perfectly. A single Aloe Vera plant can refresh any small apartment. It removes formaldehyde effectively from indoor air. It is also known for its healing properties. It can treat burns and colds.

Keep it on the kitchen window sill as it has the quality of absorbing formaldehyde produces from natural gas from gas stove and kerosene.



Rubber Plant - *Ficus robusta*

These houseplants clean the air by emitting high oxygen content, and purify indoor air by removing chemicals, such as formaldehyde or other toxins.

Keep it in a large open space, preferably with bright indirect light or full sunlight. Varieties with plain green leaves are more tolerant of low light conditions than those with variegated foliage which need several hours of direct sunlight everyday to maintain good colour contrast. It is 'bonsai-able' also.



Peace Lily – *Spathiphyllum*

Pollutants like benzene, toluene, xylene, ammonia, formaldehyde and trichloroethylene are successfully filtered out by the beautiful Peace lily houseplant.

Keep it near carpeting, rubber, dry-cleaned items, tobacco smoke, gasoline, synthetic fibres, plastics, ink paints, varnishes, lacquers, oils and detergents.



Spider Plant – *Chlorophytum comosum*, ribbon plant, spider ivy

The spider plant absorbs all the chemicals spray while cleaning the apartment. This plant is very simple and undemanding. Very popular garden plant. It does not require much watering and is very adaptable for hanging basket.

Keep it near carpeting, bathroom or window facing traffic/road.



Money Plant – *Epipremnum Aureum*, Golden Pothos, Devil's ivy

This plant acts as an excellent natural anti-pollutant against common pollutants like benzene, formaldehyde and carbon monoxide.

Keep it in a bedroom, where it is best suited and which is usually closed for long duration during the day time when we are away. We may also place it near the furniture.



Chrysanthemums – *Chrysanthemum morifolium*, Garden Mum, Guldoudi

This plant was found by NASA to be a real air-purifying plant. It removes ammonia, benzene, formaldehyde, and xylene from home's air. It is popular and inexpensive, plus they can be planted outside too.

Keep it near tobacco smoke, gasoline, synthetic fibres, plastics, ink, paints, varnishes, lacquers, oils and detergents.



Snake Plant – *Sansevieria laurentii*, mother-in-law's tongue

They help remove benzene, formaldehyde, trichloroethylene and xylene from indoor air. This plant can be seen everywhere, mostly in offices and restaurants. It requires almost no care. It only needs to be watered about once a month. It likes dry air and little sunlight.

Keep it near carpeting and rubber based or dry cleaned items.



Chinese Evergreen – *Aglaonema modestum*

Emits high oxygen content, and purifies indoor air by removing chemicals, such as formaldehyde, benzene or other toxins. They are thought to bring good luck and were used as decoration in Asian countries long before they made it west.

Keep it near gasoline sources and carpeting.



Gerbera Daisy – *Gerbera jameson*, Daisy, Gulbahar

NASA says this plant is fantastic at removing benzene, a known cancer-causing chemical. It also absorbs carbon dioxide and gives off oxygen overnight, which is said to improve our sleep!

Keep them in a sunny spot when they're indoors or in the porch. This is an indoor/outdoor plant and place outdoors during the summer so that it can get the most sunshine.



Dumb Cane – *Dieffenbachia* hybrids, Leopard Lily

Its large leaf surface area helps it to quickly remove air contaminants from indoor spaces. These are poisonous and avoid coming into contact with the sap and if so, wash it off before accidentally rub eye or somewhere equally unfortunate.

Keep it near the furniture.



Apart from these plants, all species of Dracaena and Bamboo palm are very easy to grow and they help in removing volatile airborne pollutants and a wide range of chemical vapours.

How to Position Them

As a rule of thumb, in an 8-foot ceiling house, 2-3 plants in 6x8-inch pots will clean 100 square feet of space. The more vigorous the plant, the more air it can filter.

When positioning the plants, try to strike a balance between light and ventilation because the effect of plants on indoor air pollution appears to be reduced if they are set in a draft.

Place a plant within “personal breathing zone”, a space 6x8 cubic feet around where we can work at our computer, watch TV, or sleep. Plants placed within this zone can add humidity, remove bio-effluents and chemical toxins and suppress airborne microbes. Placing several inches of aquarium gravel over the soil in the plant container will help prevent the formation of molds, a common allergen.



Note:

Flowering plants need sun to bloom and grow in a sunny spot either near open window indoors or out in the porch (other outdoor plants like this also clean the air when brought inside for a short time)

Source: Insight: The Consumer Magazine, March-April 2005, How to grow fresh air: fifty Houseplants that purify your home or offices by Dr. Bill Wolverton www.wolvertonenvironmental.com