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Indoor Plants for Air Purification

*Dr. P. Pedda Nagi Reddy

Assistant Professor (Horticulture), S V Agricultural College, Tirupati,
Acharya N G Ranga Agricultural University, India

*Corresponding Author's email: p.peddanagireddy@angrau.ac.in

Air pollution is a major environmental concern in most major cities. As society grew more civilized and industrialized, contamination of the air increased a lot and contributed to the pollution of the atmosphere. Thousands of activities contribute to the overload of air pollution. Volcanoes, decaying plants and animals and dust are natural sources of pollution. Thus air quality has a huge impact on different aspects of life quality and therefore air quality improvement is important.

Poor indoor air quality has been linked to many health related issues especially in children. Allergy and asthma are to be considered as the most common chronic disease in urban dwelling children.

Air filtration could be the use of houseplants. Trees and other vegetation absorb pollutants and play large role in cleansing the atmosphere. Trees are an important, cost effective solution to reducing pollution and improving air quality. In addition to basic photosynthesis that removes carbon dioxide and returns oxygen to air, plants can remove toxicants/impurities from air, soil and water in at least two ways. First, they can metabolize some toxic chemicals, releasing harmless by-products; secondly they can incorporate toxicants, such as heavy metals into plant tissues, thus sequestering them.

Table 1: Indoor pollutant, source and plant that remove pollutant

Pollutant	Source	Plants that Remove Pollutant
Benzene	Inks, oils, paints, plastics, dyes, detergents, gasoline, pharmaceutical, tobacco smoke, synthetic fibers	English Ivy, Dracaena marginata, Janet Craig, Warnecke, Chrysanthemum, Gerbera Daisy, Peace lily
Formaldehyde	Foam insulation, plywood, pressed-wood products, grocery bags, waxed paper, fire retardants, adhesive binders in floor coverings, cigarette smoke, natural gas	Azalea, Philodendron, Spider plant, Golden Pothos, Bamboo palm, Corn plant, Chrysanthemum, Mother-in-law's tongue
Trichloroethylene	Primarily used in the metal degreasing and dry cleaning industries; also in printing inks, paints, lacquers, varnishes, adhesives	Gerbera Daisy, Chrysanthemum, Peace lily, Warnecke, Dracaena marginata

				
<i>Chlorophytum Comosum</i>	<i>Plectranthus scutellarioides</i>	<i>Ficus elastica</i>	<i>Spathiphyllum wallisii</i>	<i>Dracaena marginata</i>
				
<i>Rhapis excelsa</i>	<i>Swietenia mahagoni</i>	<i>Ficus religiosa</i>	<i>Hedera helix</i>	<i>Epipremnum aureum</i>
				
<i>Dracaena trifasciata</i>	<i>Syngonium podophyllum</i>	<i>Aglaonema commutatum</i>	<i>Colocasia esculenta</i>	<i>Dieffenbachia Camille</i>
				
<i>Dracaena fragrans</i>	<i>Dypsis lutescens</i>	<i>Adelonema wallisii</i>	<i>Rhapis excelsa</i>	<i>Phalaenopsis amabilis</i>

Table 2: Anti pollutant plants with common name, botanical name, family and anti pollutant effects

S. No.	Common Name	Botanical Name	Family	Anti-Pollutant Effects
1	Airplane plant, Spider ivy, Ribbon plant	<i>Chlorophytum Comosum</i>	Asparagaceae	Removing harmful chemicals from the air, such as carbon monoxide, xylene, formaldehyde and toluene.
2.	Coleus, Colforsine Forskolin	<i>Plectranthus scutellarioides</i>	Lamiaceae	remove indoor toxins
3.	Indian Rubber Tree	<i>Ficus elastica</i>	Moraceae	Convert co2 to o2, remove formaldehyde, benzene, carbon mono oxide.

4	Peace Lily, White Sails	<i>Spathiphyllum wallisii</i>	Araceae	it removes pollutants like benzene, xylene, carbon monoxide, and formaldehyde are some that a peace lily plant can absorb.
5	Dragon tree, dragon plant, Madagascar dragon tree	<i>Dracaena marginata</i>	Asparagaceae	reduce indoor pollution levels with removal of formaldehyde and benzene.
6.	Ground Rattan, Bamboo Palm, Lady Palm, Miniature Fan Palm	<i>Rhapis excelsa</i>	Arecaceae	remove harmful toxins such as formaldehyde, ammonia, and xylene
7.	Mahogany	<i>Swietenia mahagoni</i>	Meliaceae	Antiseptic, remove greenhouse gases i.e. CFC, methane, carbon monoxide.
8.	Bodhi Tree, Sacred Fig Tree, Pipul Tree	<i>Ficus religiosa</i>	Moraceae	Remove carbon di oxide, release oxygen 24 hours
9.	English ivy	<i>Hedera helix</i>	Araliaceae	Remove formaldehyde, benzene, trichloro ethylene.
10.	Money Plant, Devil's Ivy, Ivy Arum	<i>Epipremnum aureum</i>	Araceae	Remove formaldehyde, trichloroethene, toluene, xylene, and benzene
11.	Mother-in-law's Tongue, Snake Plant, Spear Plant	<i>Dracaena trifasciata</i>	Asparagaceae	remove toxic air pollutants benzene, formaldehyde, xylene, trichloro ethylene, toluene.
12.	arrowhead	<i>Syngonium podophyllum</i>	Araceae	Remove even volatile organic compounds such as benzene, formaldehyde, toluene, and xylene.
13.	Chinese Evergreen, Silver Evergreen, Pewter, Painted Drop-Tongue	<i>Aglaonema commutatum</i>	Araceae	Remove formaldehyde and benzene.
14.	Elephant's Ear	<i>Colocasia esculenta</i>	Araceae	Remove benzene, trichloro ethylene, formaldehyde, ammonia, toluene, carbon monoxide, styrene.
15.	Corn Plant	<i>Dracaena fragrans</i>	Asparagaceae	Remove benzene, tri chloro ethylene, formaldehyde.
16.	Golden cane palm, Areca palm, yellow palm, Butterfly palm	<i>Dypsis lutescens</i>	Arecaceae	The plant can break down compounds like acetone, formaldehyde, xylene, and toluene, thus eliminating pollutants and purifying the air
17.	Ground Rattan, Bamboo Palm, Lady Palm, Fern R hapis	<i>Rhapis excelsa</i>	Arecaceae	Eliminate airborne contaminants, including ammonia, formaldehyde, xylene, and carbon dioxide, from homes.
18.	moon orchid, mothorchid, or mariposa orchid	<i>Phalaenopsis amabilis</i>	Orchidaceae	Remove benzene, tri chloro ethylene, formaldehyde.
19.	Dumb Cane	<i>Dieffenbachia Camille</i>	Araceae	Remove formaldehyde, xylene
20.	King of hearts, Homalomena	<i>Adelonema wallisii</i>	Araceae	Remove carbon di oxide

In conclusion, air pollutant plants offer advantages for the environment and human health as a sustainable and organic way to improve air quality. Individuals and communities can take proactive measures to create cleaner and healthier indoor and outdoor environments by utilising the natural qualities of these plants. Many health advantages, such as decreased exposure to pollutants, better respiratory health, and increased general well-being, can result

from the incorporation of anti-pollutant plants into interior spaces, such as homes, workplaces, and public buildings. These indoor plants not only filter the air, but they also enhance the visual and psychological atmosphere by fostering a sense of serenity and connectedness to the natural world. In summary, employing anti-pollutant plants is a comprehensive and sustainable strategy for reducing indoor air pollution. Accepting these plants' inherent ability to purify the air will help us design healthier, more habitable interior spaces that will improve everyone's quality of life.

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