

# Are Plants Beneficial to Health

Are plants in offices beneficial to health?

Dr. Leona Rogler; for: 'The comprehensive office series' of the Association for Administrative Professions

Plants in offices are beneficial to people. They create an individual working environment and bring colour into the room. They give a feeling of well-being and create a live atmosphere. They are beneficial for a positive mood and help to overcome stress. In this way, ficus, banana etc help to improve the room climate.

Fact: In offices with plants, complaints about headaches, stress, heart/circulation-symptoms as well as colds are reduced.

How does this work and how you can make use of the advantages of an office with integrated plants?

Plants regulate the climate. They influence the humidity and improve the air quality, absorb carbon dioxide and other harmful substances and emit oxygen and they bind dust. The air temperature should be low rather than too high and should have the same value at head and foot level: Normally 21°C to 22°C and when temperatures outside are high, a maximum of 26°C.

The relative humidity should not drop below 30 %. This is often unavoidable during winter months because the air humidity drops without extra humidification. This low air humidity results in the drying out of the mucous membranes of the upper respiratory tracts and can, in the long run, lead to chronically inflamed mucous membranes. Drying out of the skin and irritation of the eyes are the consequence. A dry nose/throat does not only negatively affect general well-being but also results in a bad defence shield against bacteria and viruses.

The result: we are more susceptible to cold germs.

Using green plants with a high need for water, for example nest fern, banana, African hemp and also *Cyperus alternifolius*, the humidity can be increased in a natural way. The air humidity should not rise above 60 to 65 percent because under certain circumstances, this could cause mould.

Important: The rooms air should be free of all pungent smells and odours and toxic substances. Because parallel to the unappetising odours, as a rule, the carbon dioxide content also rises. The margin of tolerable odour concentration is exceeded at 0.1 percent vol. The more carbon dioxide in the air, the more tired and listless we become. The more leaf surface a plant has, the more effectively it can discharge carbon dioxide. It is not the size of the single leaf, but the whole leaf surface of the plant that matters. Banana, ficus species and green-leafed wine have a large leaf surface.

Dry air is always more dusty than humid air. Dust particles are always lighter when they do not hold much moisture. Also electrostatic charge holds the dust particles that are suspended in the air.

On their own, plants are not suitable as biological air filter systems for means of reducing harmful substances indoors. In the case of reduced air quality due to harmful substances for example smoking, solvents and other building materials the recognition and elimination of the source is top priority. Airing the room at regular intervals is also of extreme importance.

Additional biological air filtering by plants was experimentally proven to work in two ways:

- a) The ribs of the leaves of the plants take up the harmful substances, collect, process and filter them. For example, this has been scientifically proven for formaldehyde.
- b) The harmful substances in the air get into the soil, i.e. a hydroponics substrate with a high content of activated carbon. The next step is that either the harmful air substances are directly absorbed by the roots of the plant and are then transported to, processed and respectively deposited, by the plant or, the processing by soil bacteria, for which the harmful substances serve as a source of nourishment.

The processing rates of plants only work out to approximately 1 percent of the processing rate of bacteria. As the detoxifying potential of plants is relatively low, rooms must be richly decorated with plants in order to be effective.

Plants must be healthy and kept that way to work effectively for our wellbeing and of course, aesthetically. They need good lighting and regular care including feeding and watering.

Summary: The influence of plants on air quality and our general wellbeing has been proven. Just importantly however, is the positive psychological effect they have on us.

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