

Keep the Aspidistra flying

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Grown for its ability to survive neglect, shady conditions and the effects of gas used for lighting, the Aspidistra was such a popular houseplant in late Victorian Britain that it came to represent – as novelist George Orwell put it – the middle class's desire for respectability.

In Orwell's world, the Aspidistra equalled settling down, making good and selling your soul for a villa and a potted plant. But its hardy nature has proved a bellwether for the role we now know [plants](#) can play in freshening [indoor air](#) and lifting the office drone's mood.

Recently, those values have been ignored by government and industry, who have slashed spending on [indoor plants](#). The popularity of the indoor plants has also waned in the face of suggestions fungi in potting mix could induce allergies and asthma.

But recent research by the University of Technology, Sydney (UTS) Plant and Indoor Environmental Quality Group has shown that is not the case. Their tests showed there was only a miniscule amount of [fungal spores](#) in the air in rooms that had plants with potting mix, compared with a much higher count in outside air, says the team's chief investigator and plant scientist, Margaret Burchett.

"If you take one breath outdoors, it is equal to about a day's breathing indoors," says Professor Burchett.

For more than a decade, the UTS plant research group has been conducting laboratory and office studies to unlock the secrets of how

potted plants improve [indoor air quality](#). Most of that work concerned [volatile organic compounds](#) (VOCs), toxic and sometimes carcinogenic emissions from things such as plastics, synthetics, computers and furniture.

"The smell of newness is a very high level of what we are talking about but even at very low levels you can smell these emissions," says Adjunct Professor Burchett. "In vulnerable people, it can make them woozy and drowsy and induce headaches."

Australians spend about 90 per cent of their time indoors and indoor air is always more polluted than outdoor air, even in the CBD.

Plants can reverse some of that toxicity by absorbing and degrading VOCs, carbon dioxide (CO₂), nitrogen and sulphur oxides, says Professor Burchett's colleague, Fraser Torpy, a lecturer in the UTS School of the Environment.

"We have found that the capacity of indoor plants to remove VOCs from the air is fantastic," says Dr Torpy. "And it is easy. Put a couple of plants in your office and they are gone." The plants also help stabilise humidity and temperature, and reduce noise and dust levels.

But wait, there's more. A high level of CO₂ is just as toxic as too many VOCs, says team member and PhD student, Peter Irga. But plants can help here as well.

Irga, who is experimenting with different plant species and different amounts of light to maximise CO₂ reduction, has recently demonstrated that plants grown hydroponically can simultaneously remove CO₂ and VOCs. The more light the higher the CO₂ removal but too much light can make life uncomfortable for humans and plants "so we are trying to find a happy balance between those two".

An added bonus could be lower power bills, says Dr Torpy. As well as cooling or heating a room, air conditioners remove CO₂ from the indoor atmosphere but they use a lot of energy.

"We have a hypothesis that if we get the plants right and the light right we can ameliorate CO₂ to such an extent that the air conditioners will use significantly less energy. That is currently one of our two research directions."

Provided by University of Technology, Sydney

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