



AIR QUALITY + URBAN PLANTS


URBAN PLANTS

Urban plants simply means plants that are growing in urban areas. These plants have many important roles within our towns and cities.



HOW TO CLEAN AIR

Plant leaves are able to remove both gaseous and particulate pollution. Gaseous pollution, mainly carbon dioxide, is absorbed for use in photosynthesis, whilst other gases are moved to the roots where microorganisms can convert them to food.



PARTICULATE MATTER

Small particles, sometimes less than 1um (0.0001cm), are usually products of combustion. This pollution can lead to a range of health problems including asthma attacks and heart disease.



THE BEST LEAVES

Lanceolate-shaped leaves have been shown to be the best shape for capturing pollution. The presence of hairs and wax also help pollution to stick. These factors can increase pollution capture by up to 10 - 20 times!⁽¹⁾ Microscopic surface textures can also trap particles.⁽²⁾



A SCHOOL STUDY

A Sheffield school had a green barrier of plants installed to help improve their air's quality. This reduced NO₂ by up to 23% and particulate pollution by 2%. If different plants with varying leaf properties are used, even more pollution was captured. It is predicted that once the green barrier grows to full density, pollution will be reduced in the school by up to 30%!⁽³⁾ Other benefits included noise reduction, habitat, and better water drainage⁽¹⁾.

(1) Blanus, T., Garratt, M., Cathcart-James, M., Hunt, L. and Cameron, R.W., 2019. Urban hedges: A review of plant species and cultivars for ecosystem service delivery in north-west Europe. *Urban Forestry & Urban Greening*, 44, p.126391.
(2) el Carmen Redondo-Bermúdez, M., Gulenc, I.T., Cameron, R.W. and Inkson, B.J., 2021. 'Green barriers' for air pollutant capture: Leaf micromorphology as a mechanism to explain plants capacity to capture particulate matter. *Environmental Pollution*, 288, p.117809.
(3) Redondo Bermúdez, M.D.C., Chakraborty, R., Cameron, R.W., Inkson, B.J. and Val Martin, M., 2023. A Practical Green Infrastructure Intervention to Mitigate Air Pollution in a UK School Playground. *Sustainability*, 15(2), p.1075.