

The potential for indoor ultrafine particle reduction using vegetation under laboratory conditions

Por: [Stapleton, E](#) (Stapleton, Emma)^[1]; [Ruiz-Rudolph, P](#) (Ruiz-Rudolph, Pablo)^[2]

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Resumen

Ultrafine particle pollution is a health concern in indoor and outdoor settings. Reducing ultrafine particle exposure and concentrations in populated areas is therefore an important research topic. Our study assesses the effectiveness of plants to decrease ultrafine particle concentrations in indoor environments. Ambient ultrafine particle concentrations were measured for three hours in and outside a polycarbonate chamber with and without plants using a condensation particle counter. Reduction in ambient ultrafine particle levels between blanks and treatments of 11 plant species were compared using infiltration factors (F-infs). All but one species, *Dracaena deremensis compacta*, resulted in in-chamber ultrafine particle reductions, with typically small but statistically significant results. *Juniperus chinensis* San Jose' showed the highest per-plant ultrafine particle reduction (5.5%). A linear relationship between number of within-chamber plants and percent ultrafine particle reduction was proven ($r(2)=0.95$) for juniper plants, four plants achieved the maximum F-infp reduction (19.9%). Plant surface area was associated with ultrafine particle reduction ($r(2)=0.85$) when comparing statistically significant results. Humidity and temperature were irrelevant to reduction. Household ultrafine particle reduction was estimated using juniper plants (11%). Results indicate that plants may provide a small, yet statistically significant ultrafine particle reduction in homes with the co-benefit of greening the indoor environment.

Palabras clave

Palabras clave de autor: [Chamber](#); [Plants](#); [Ultrafine particle deposition](#); [Infiltration factor](#); [Santiago](#); [Chile](#); [Indoor air quality](#)

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Información del autor

Dirección para petición de copias: Stapleton, E (autor para petición de copias)

+ Univ Andres Bello, Republ 252, Santiago 8370251, Chile.

Direcciones:

+ [1] Univ Andres Bello, Fac Ecol & Recursos Nat, Santiago, Chile

+ [2] Univ Chile, Inst Salud Poblac, Fac Med, Programa Salud Ambiental, Santiago, Chile

Direcciones de correo electrónico: stapleton.em@gmail.com

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