

Influence of atmospheric air pollution on indoor air quality: Comparison of chemical pollutants and mutagenicity levels in Santiago (Chile)

Gil, Lionel

Cáceres, Dante

Adonis, Marta

The influence of atmospheric pollution on indoor air quality (IAQ) was studied in downtown Santiago (Chile). Carbon monoxide (CO), nicotine, the mass of respirable particulate matter below 5 μ m (PM5 fraction) and total and carcinogenic polycyclic aromatic hydrocarbons (PAHs) were simultaneously monitored indoors and outdoors in restaurants, offices and other places. The levels of CO changed simultaneously outdoors and indoors ($r = 0.89$), especially during traffic rush hours, masking the contribution of other indoor sources and showing the importance of infiltration of outdoor air indoors. CO concentrations ranged from 1.0 to 73 ppm and 0.5 to 93 ppm for indoors and outdoors, respectively. The highest running 8-hour average levels measured were 16 and 18 ppm, respectively. These levels exceeded the Chilean 8-hour standard of 9 ppm to the extent of 178% indoors and by more than 200% outdoors. PM5 concentrations were high and showed no significant differences ($p > 0.05$) between indoors and