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Effect of roadside trees on traffic related particulate pollution

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Fine particulate matter ($PM_{2.5}$) is an important air pollutant due to its adverse effects on human health. It contains heavy metals (HMs) which are potentially toxic in nature and cause more serious health impacts. Vehicle emissions make a large contribution to particle concentrations in urban areas, and exposure to the pollutants near roadways increase the risk of public health problems. To lower the health risks for the urban population, planting vegetation at the roadside can be used to capture the pollutants. Istanbul is the most populous city of Turkey and on-road traffic is increasing rapidly in the city, hence air pollutants especially originating from vehicle traffic is playing a crucial role for the public health. In this study, mitigation effect of roadside trees on the reduction of vehicle-related $PM_{2.5}$ with its HM composition is investigated in Istanbul, Turkey. For this purpose, 15 roadside coniferous evergreen trees (*C. sempervirens*) were used under three different cases. Air sample filters and the roadside tree leaves were examined on a dense-traffic roadside in central Istanbul. Findings of the study indicate that roadside trees with greater density configuration have mitigation potential in particulate pollution and pedestrian exposure.

Biography

Huseyin Ozdemir is an Assistant Professor at the Civil Engineering Department, Bahcesehir University. He holds a PhD in Environmental Engineering from Marmara University (Istanbul, Turkey). He has MS degree in Environmental Engineering from Istanbul University and BS degree in Environmental Engineering in Marmara University. His research interests include air quality and its impacts, air quality modeling, air quality monitoring, and meteorological modeling.

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