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Particulate matter (PM2.5) assessment in the indoor air of preliminary schools' classroom, investigative results from rural district of Sari, Iran

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Various environmental studies have revealed the relationship between the indoor concentrations of particulate matters (PM2.5). Though, there is lake of data about indoor PM2.5 concentrations in rural area classrooms, since preliminary children are assumed to be more defenseless to health hazards and spend a large part of their time in classrooms. The objective of this study was indoor PM2.5 concentration quality assessment. Fifteen preliminary schools and 150 classrooms were selected to evaluate the indoor air quality in the rural district of Sari city, Iran, in 2012 semester. Data on indoor air climate parameters (temperature, relative humidity) were measure by Asman Hygrometer, SIBATA and Digital Barometer, Airflow, DB2 and Particulate Matters (PM2.5) were collected and assessed by Real Time Dust Monitor, (MicroDust Pro, Casella, UK). The mean indoor PM2.5 concentration in the studied classrooms was 60 µg/m3 in spring. The multiple linear regression revealed that a correlation between PM2.5 concentration and relative humidity, distance from city center, classroom size and altitude. Classroom size yields reasonable negative relationship, the PM2.5 concentration was ranged from 10 to 783µg/m3 and statistically significant at 0.0001 level and the relative humidity was ranged from 70 to 85% and dry bulb temperature ranged from 28 to 29°C were statistically significant at 0.035 and 0.0001 level, respectively. The associations were stronger regarding PM2.5 concentration reverse regarding humidity (an increase by 7% humidity per decrease in 20µg/m3). A statistical predictive model was obtained from multiple regressions modeling for PM2.5 and indoor psychrometric parameters.

Biography

Seyedtaghi Mirmohammadi has completed his Ph.D. at the age of 40 years from University Science Malaysia. He is an Assistant Professor in the field of indoor air pollution at department of occupational health. He has served as deputy dean of vice-chancellor in Mazandaran University of Medical Sciences in Iran. He has published more than 13 papers in reputed journal.

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