

Abstract (EN)

This thesis describes air quality in schools, its main factors of interest and according to the longitudinal study it suggests possible solutions for improvement. The study had been done in Kladská elementary school, Prague, Czech Republic, based on the findings obtained from the initial literature review. Although many scientific papers have been published mainly during the last decade, there is a very limited amount of information concerning this issue within a longer timescale and a complex point of view is missing. The school environment was chosen because children are one of the groups at higher risk when adverse health effects caused by inadequate indoor air quality are evaluated. Aerosol particles and carbon dioxide concentration, temperature and relative humidity levels are important factors of interest in this case and all of them were included in the study. 8 measuring campaigns, each of them took 1 week, had been done throughout the whole school year. The main aim of these campaigns was monitoring and describing the variability of all selected factors during the day or year as well as between different classrooms. Average aerosol particles concentration (PM_{10}) didn't exceed $70\mu\text{g}\cdot\text{m}^{-3}$ during most of the campaigns and the pupil's activity was evaluated as the main influencing factor. The outdoor concentration affects the indoor one only at higher levels and this trend was observed only once. Average CO_2 level exceeded 1000ppm at all times and the 1500ppm legislation limit was exceeded 5 times. Low average relative humidity concentrations were observed during winter and the legislation limit of 30% wasn't fulfilled once. All the temperature values measured were within the correct levels. Results show the inadequate ventilation in the classrooms throughout the whole year and also show the inadequate relative humidity during the winter. High variability was observed within concentration of PM_{10} and CO_2 between different classrooms and throughout the year. These findings lead to a conclusion that a higher concern on the further longitudinal studies should be made in the future instead of the huge amount of the short ones. The main solution of the whole issue seems to be explanation of the situation to the school management and teachers as well as the governmental bodies involved.

Key words: schools, air quality, microclimate