

TITLE: INDOOR AIR QUALITY OF INSTITUTION OF CHILD EDUCATION

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ABSTRACT:

In recent decades, research on indoor air quality has been recurrent, especially in artificially air-conditioned environments. This is due to the high levels of microorganisms found in these environments, which are capable of causing a series of respiratory and skin diseases, with children and elderly being the most affected. Thus, this research aimed to analyze the indoor air quality, artificially heated, in a institution of child education, located in the city of Cuiabá-MT. The research was carried out in May/2019, and samples were collected in 12 points (P1 - 7 to 8 years; P2 - 3 years; P3 -> 18 months; P4 – external; P5 - 6 years; P6 – 2 year; P7 - 1 year; P8 - 5 years; P9 - 4 years; P10 – Administration; P11 - <1 year and P12 - kitchen). For the collect of air microorganisms (filamentous fungi and heterotrophic bacteria), air sampler/SAS SUPER ISO 100/180 model was used, volume of 500 L. The other parameters measured were: temperature (°C), relative humidity (%), air speed (m/s) and CO₂ (ppm). The results showed that the temperature is above the established resolution in all sampling points, with the highest temperature in P12 (31.4°C), while the highest moisture indexes were found at points P3 (65.3) and P12 (68.4). Air speed is out of standards at points P2 (0.3), P3 (0.6), P4 (0.5) and P6 (0.4). At points P1 (1167), P5 (1009), P8 (1363.6), P9 (1714), P10 (1178.3) and P11 (1307), the CO₂ concentration is above the recommended value for comfort and well being of individuals, which is 1000 ppm. At all sampling points, large concentrations of heterotrophic bacteria and fungi filaments were isolated. With the exception of point P10 (542 CFU/m³), all other points had a concentration of bacteria higher than 650 CFU/m³. In relation to filamentous fungi, the lowest concentration was found at point P10 (52 CFU/m³). Considering that the points sampled are occupied and/or frequented by children aged 4 months to 8 years, the high concentration of microorganisms, associated with the other factors, can compromise the children's well-being and health. It is concluded that, in all the analyzed points, there is some type of compromise in the quality of the inner air, being the points P1 and P5 the ones that presented more expressive results, regarding the microbiological quality, being necessary the immediate adoption of regulatory measures.

Keywords: Contamination, Filamentous Fungi, Heterotrophic Bacteria, Public Health.