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ARIA Project – Indoor Air Biological Assessment in Primary Schools

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Children are considered a susceptible group due to their particularly vulnerability to the development of respiratory diseases, such as asthma, and also the amount of time they spend inside classrooms, reasons why they deserve priority attention in indoor air quality studies.
Indoor air biological assessment took place during winter season, in 10 schools within 35 classrooms. These were evaluated regarding their biological contamination, during their normal occupancy, through the analysis of total bacteria count, fungi count and identification. Air sampling was carried out with a microbiological air sampler, using *Tryptic Soy Agar* for total bacteria and *Malt Extract Agar* for fungi. Results were expressed as colony-forming units per cubic meter of air (CFU/m^3) and compared with recently revised Portuguese standards.
Mean bacteria concentration is above the reference value in 9 out of 10 schools evaluated. Regarding primary schools mean fungi concentrations, only in one school the value is according with the reference value, nonetheless being very close to the established limit. If the previous Portuguese legislation was still ruling (500 CFU/m^3 for bacteria and fungi), 5 primary schools were above the reference value concerning fungi concentrations, and for bacteria values all schools were above this same reference.
Cladosporium sp. was the prevalent species found in 3 primary schools, while *Penicillium* sp. was predominant in 5. In one school, *Aspergillus fumigatus*, a known potential pathogenic/toxigenic species, was the prevalent specie identified (40%). The presence of toxin-producing fungi like *Aspergillus fumigatus* indoors should be a cause for concern considering the potential risk of mycotoxicosis.

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