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ASSESSMENT OF AIRBORNE BACTERIA IN PRIMARY SCHOOLS IN LISBON

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INTRODUCTION

Children can spend up to 90% of their time indoors, where they are continuously exposed to various airborne bacteria present in the environment[1].

The composition and concentration of indoor airborne microbiome can have a significant impact on children's health, by potentially causing infectious and respiratory diseases, and triggering allergic reactions[2,3,4].

Characterizing airborne bacteria in environments frequented by children is essential for understanding potential health risks and implementing effective mitigation strategies.

AIMS

To **quantify** and **identify** culturable bacteria in indoor and outdoor environments in **primary schools** in the suburban area of **Lisbon**.

METHODOLOGY

ENVIRONMENTS

The sampling campaign covered five primary schools in Lisbon from September 2023 to February 2024.

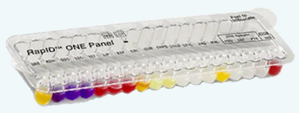
5 Classrooms **5 Outdoors** **1 Gymnasium**

SAMPLING

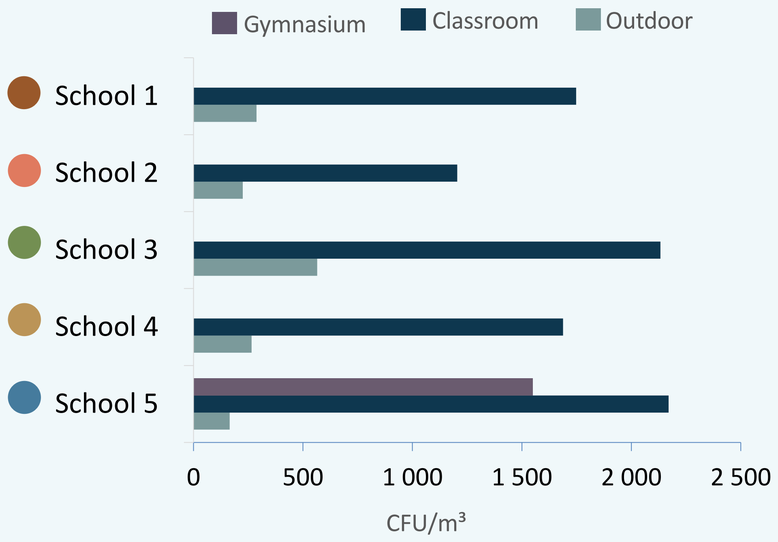
200 liters of air was sampled in triplicates on Tryptic Soy Agar plates (100 L/min) using the MAS-100 NT® sampler[5].

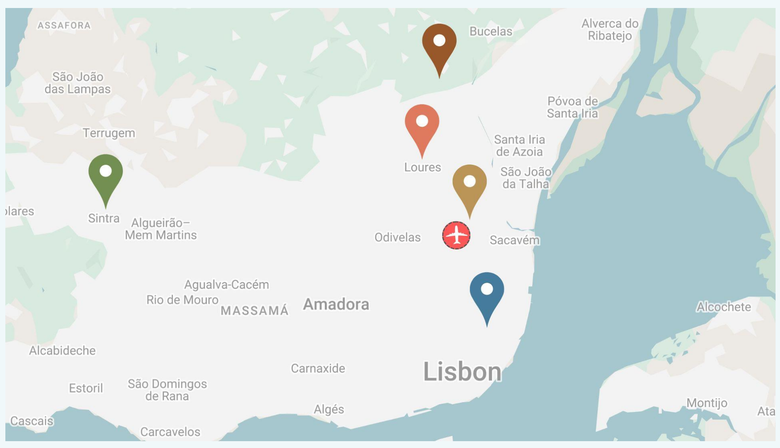
BACTERIAL PHENOTIPIC CHARACTERIZATION

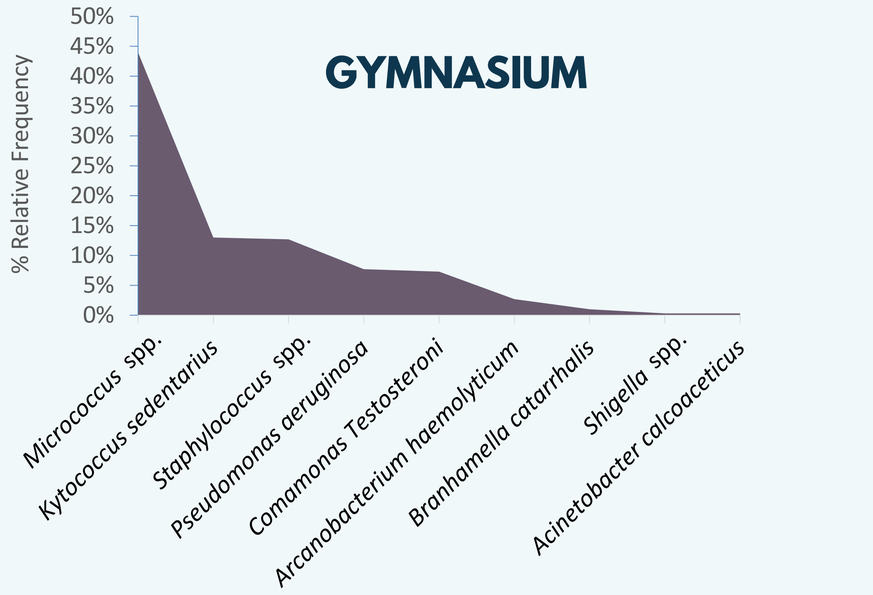
Colony-forming units (CFU) were quantified after 7 days of incubation at 30 °C. The most prevalent bacterial isolates were identified by morphological and biochemical characterization, using the RapID™ system[6].

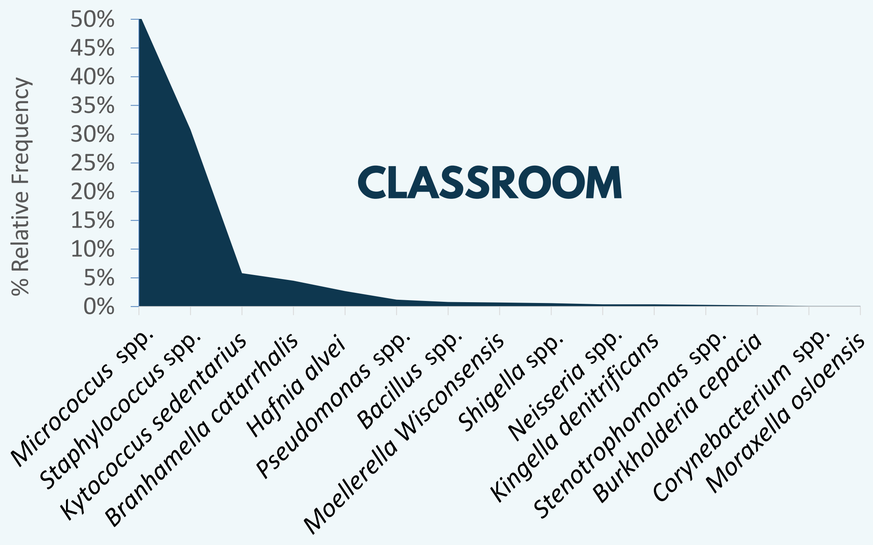


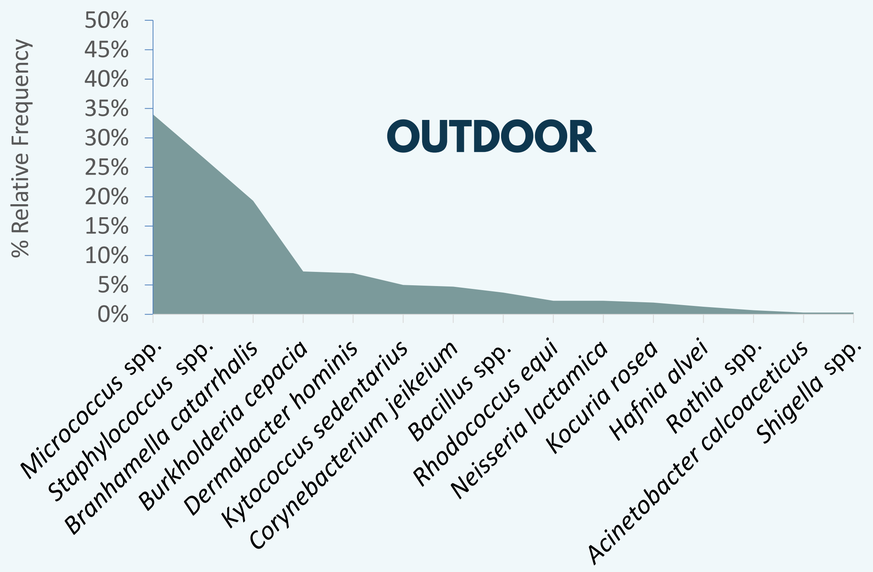
RESULTS











CONCLUSION

- **Higher concentrations** of airborne bacteria **in indoors environments** comparatively to outdoors.
- **Higher prevalence of Gram-positive species**, most probably originated from the shedding of human skin.
- Most of the identified bacteria are typically found in environmental settings, however **potentially opportunistic pathogens have been identified.**

ACKNOWLEDGEMENTS

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