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One Health approach in “Do It Yourself” stores to tackle fungal contamination

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Introduction



➤ The DIY (Do-It-Yourself) market refers to the **products used in home renovation and repair projects (1)**

➤ The target market for these items is those **who want to conduct their home renovations (1)**



➤ SARS-CoV-2 pandemic and issues with the global supply **chain didn't stop the sector from growing (2)**

➤ The sector growth resulted from **COVID-19 limitations** that kept many people confined to their houses

Introduction



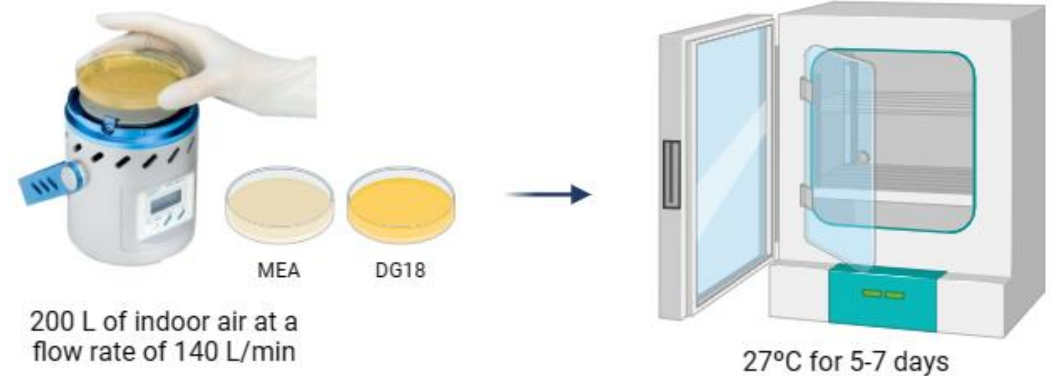
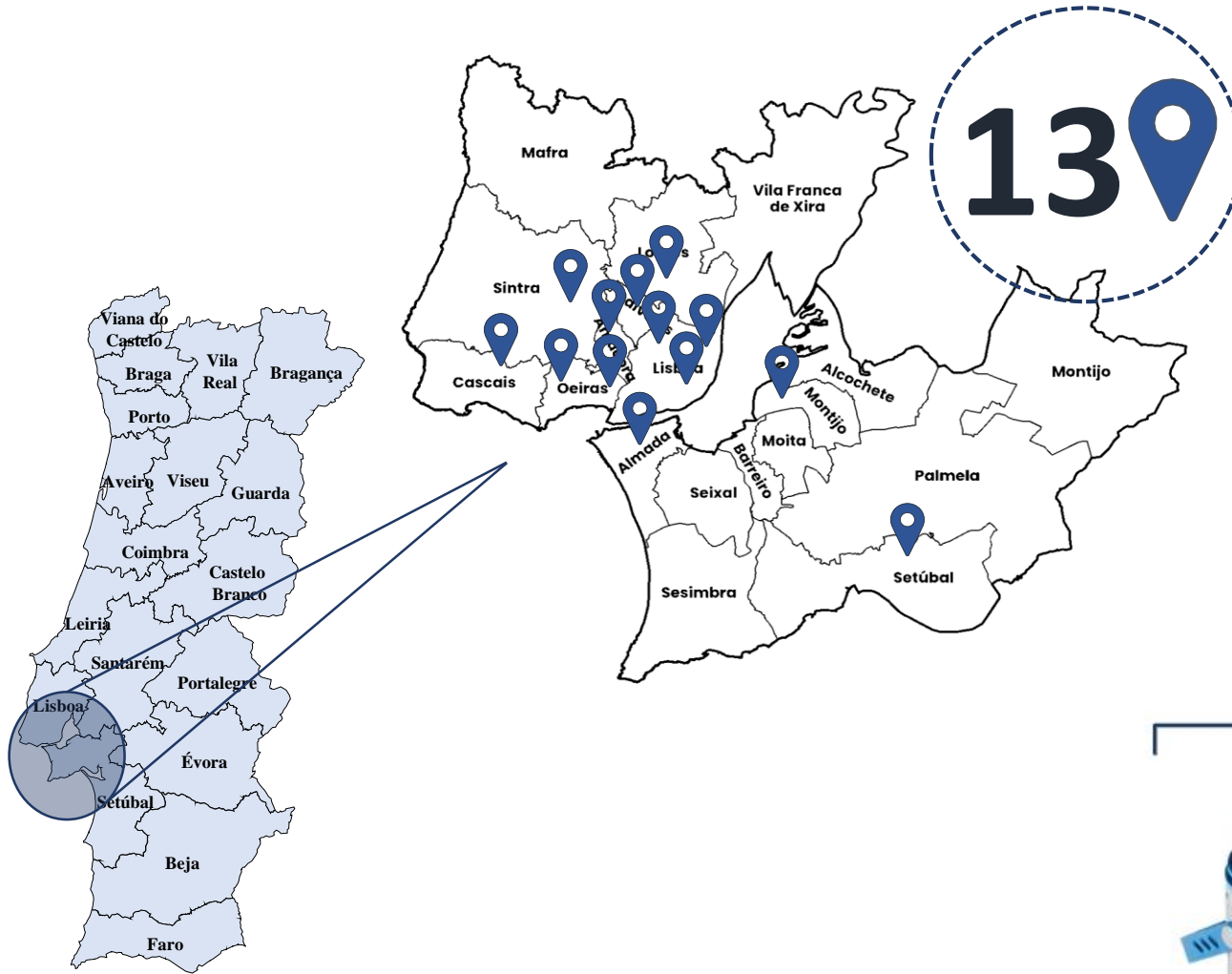
➤ The **sheer number of customers and the items' diverse origins** provide a distinct environment (3-5)

➤ It is crucial to consider the **various exposure scenarios** when focusing on microbial contamination

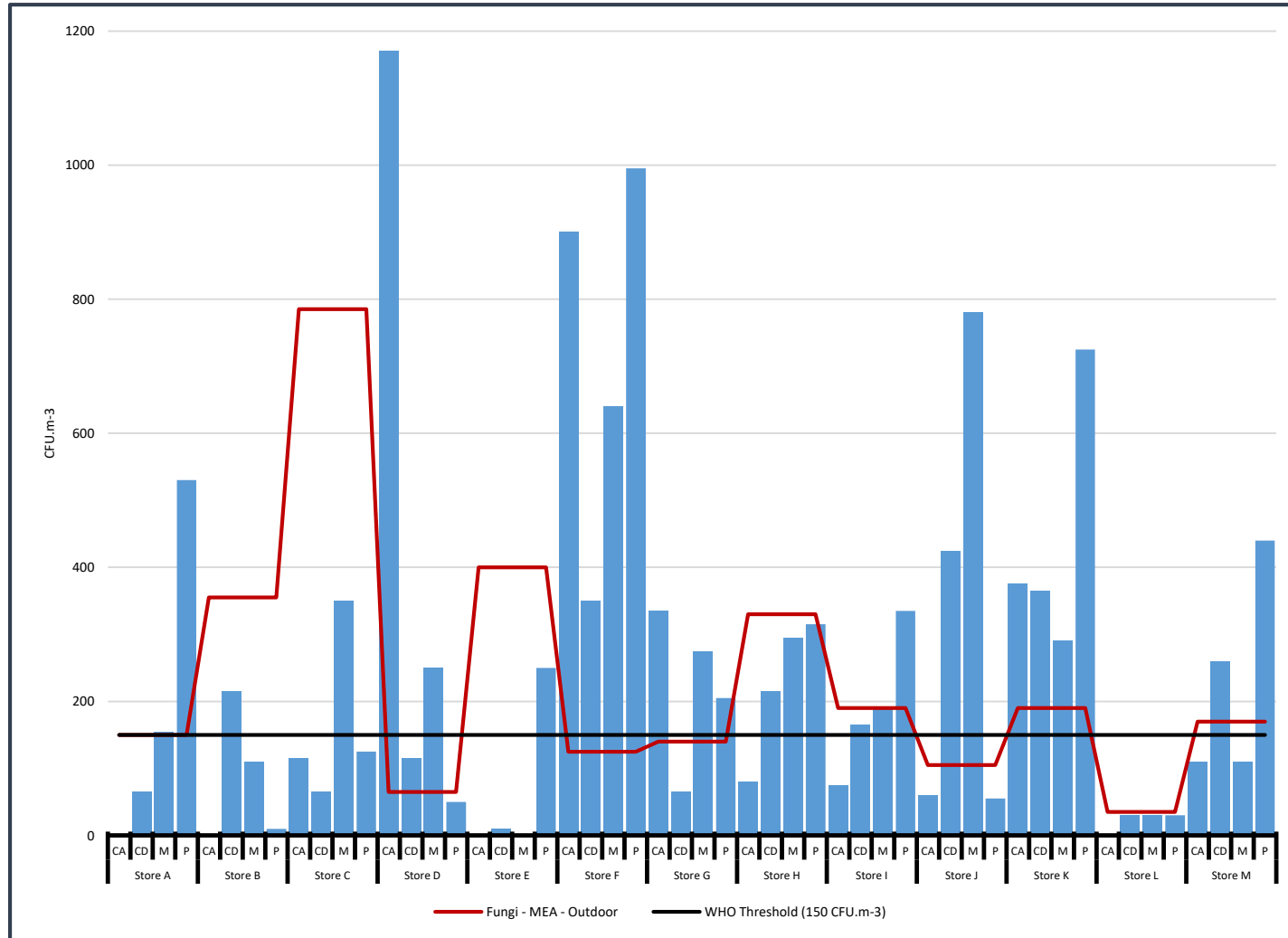


➤ This study aimed to assess the **exposure of woodworking employees and customers to fungal load**

Materials and Methods



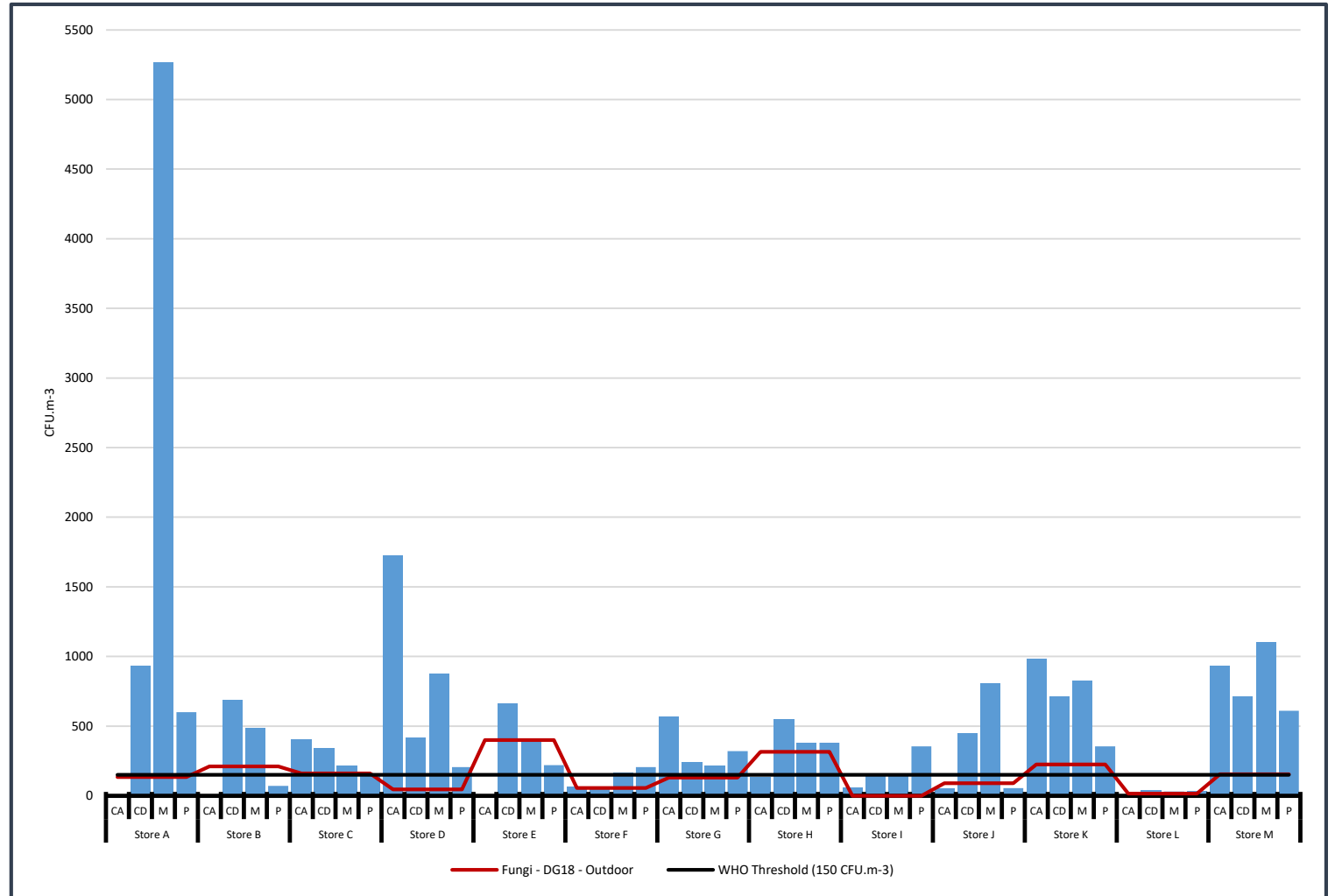
Results - MEA



- **I/O:** higher indoor load compared to the outdoor in all sampling sites in two stores
- **WHO (150 CFU.m⁻³):** at least one sampling site surpasses this limit in most stores
- **OSHA (1.0 x 10¹-1.0 x 10⁴ CFU.m⁻³):** all the sampling sites from all the stores are within the limit

Results – DG18

- **I/O:** higher indoor load compared to the outdoor in five stores
- **WHO (150 CFU.m⁻³):** at least one sampling site surpasses this limit in most stores
- **OSHA (1.0 x 10¹-1.0 x 10⁴ CFU.m⁻³):** all the sampling sites from all the stores are within the limit



Results

Regarding the customers' exposure and applying the Portuguese Indoor Air Quality (IAQ) legal framework (Portaria n.º 138-G/2021, de 1 de julho):

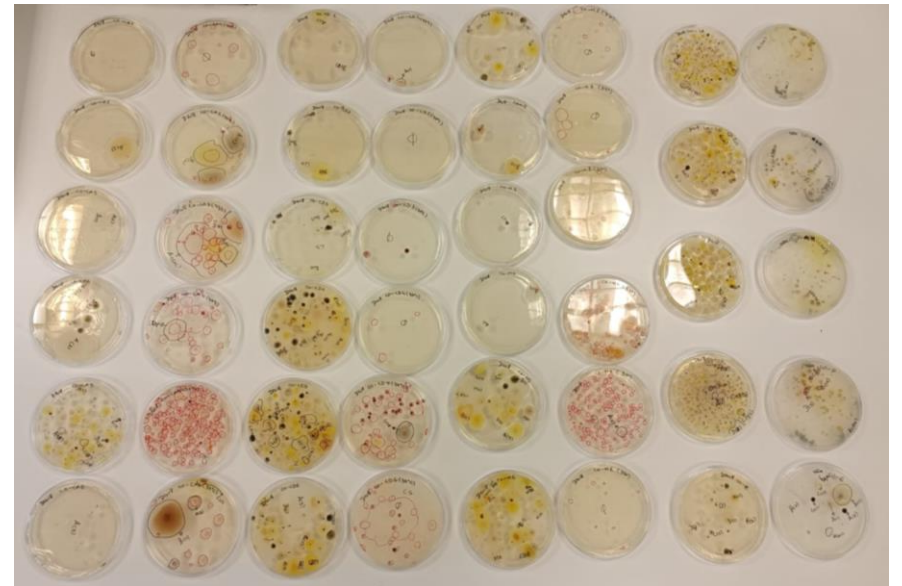
MEA

- I/O ratio complied in 5 out of 13 stores (38,5%)
- in one of those 5, one toxigenic species with a quantitative cut-off above the legal frame was identified

DG18

- I/O did not comply in any store

Additionally: 6 out of the 13 stores (46,2%), three toxigenic species with a quantitative cut-off above the legal frame were found



Discussion

- There are no occupational **exposure limits for microbial agents** (6)
- **Different results on MEA and DG18**, highlight the potential of a selective media for fungal load (7)
- **I/O ratio < 1** is used as guidance and suggests an acceptable indoor environment (8)
- I/O ratio results suggest the **need to implement measures** aiming risk control (8), like in other occupational environments (9)



Discussion



- Wood shavings have been frequently **used as animals' bedding** by the poultry industry (10)
- The bedding material is one of the **main causes of indoor air microbial contamination** in poultry (10)
- Increase on animal and occupational research in poultries, **reinforcing the One Health strategy** (6,10)

Determine priority areas for intervention to reduce microbiological exposure in DIY stores

Main Findings

- Health concerns regarding workers' and customers' safety **support the need to prevent exposure**
- Selective culture media allow us **a more detailed analysis** preventing the overgrowth of some species
- Wood dust and shavings from DIY stores **may be used in animal bedding and agriculture**
- The use of wood shavings in other environments **highlight the need for a One Health approach**

The novelty of this data is to allow a prioritized intervention by Occupational Health Services aiming an accurate exposure assessment and allowing a more detailed risk assessment and management





Thank you for your attention!

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Acknowledgments:

This research was funded by national funds through the FCT—Fundação para a Ciência e Tecnologia, I.P., within the scope of the PhD Grant UI/BD/151431/2021. H&TRC authors gratefully acknowledge the FCT/MCTES national support through the 2023.01366.BD; UIDB/05608/2020; UIDP/05608/2020 and PL/2022/InChildhealth/BI/12M. The Instituto Politécnico de Lisboa, national support through IPL/IDI&CA2023/FoodAlleEU; IPL/IDI&CA2023/ASPRisk and IPL/IDI&CA2023/ARAFSawmills_ESTeSL

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