

# Sampling protocol to assess occupational exposure to bioburden in clinical facilities

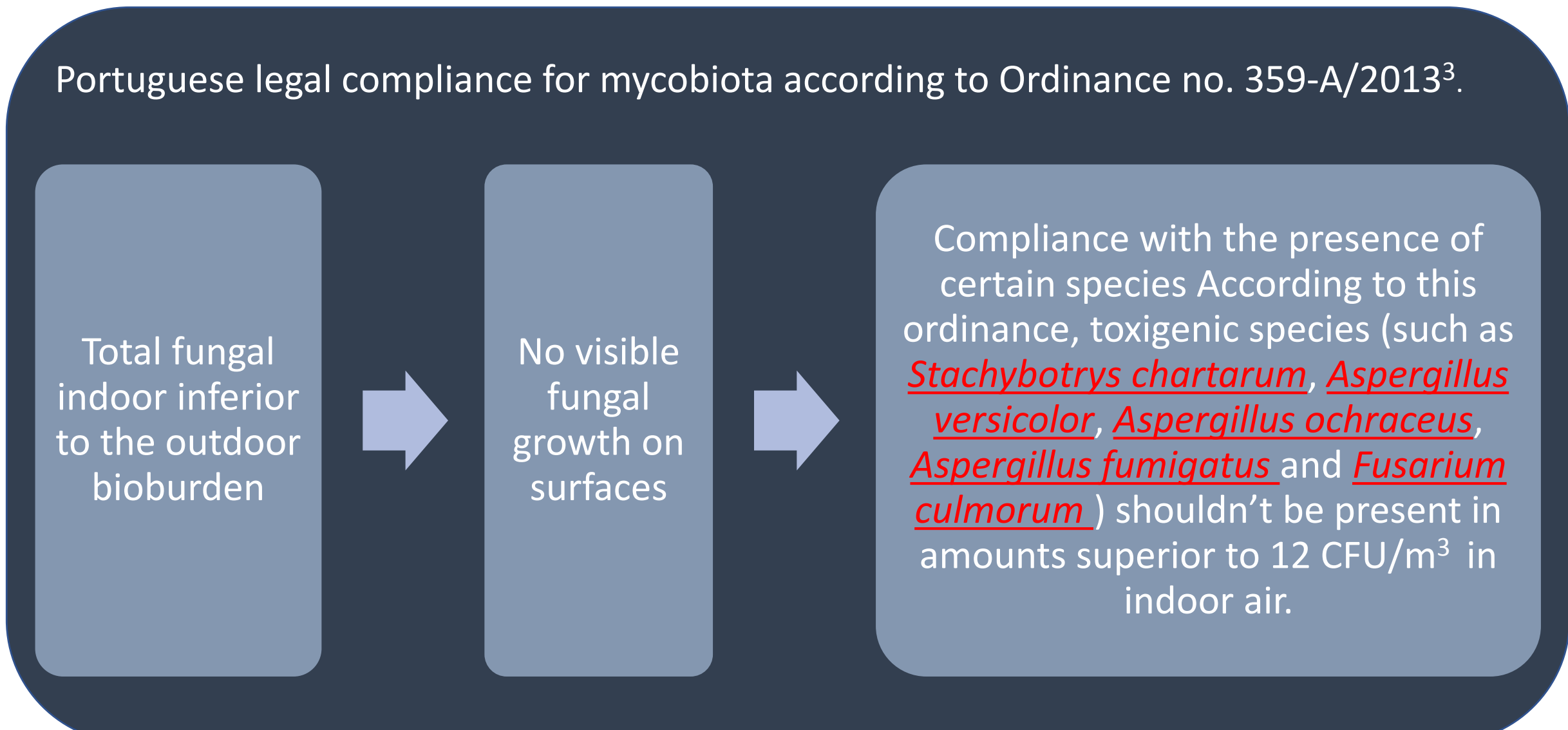
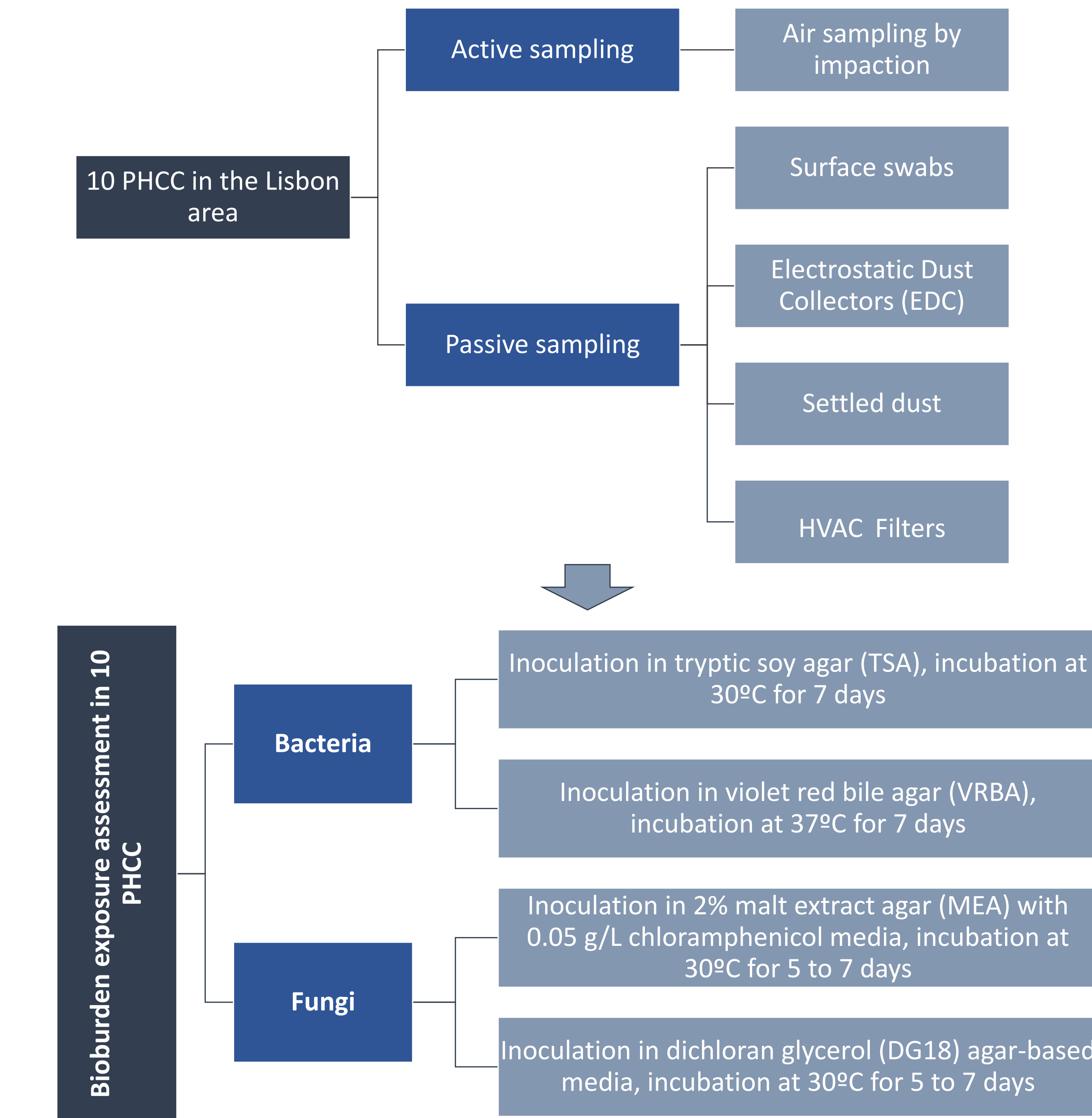
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## Introduction

Bioburden (comprising fungi and bacteria) is associated with a wide range of adverse health effects and besides patients, clinical staff is also at risk to be exposed. Most of the studies worldwide focusing in bioburden for Indoor Air Quality (IAQ) studies or for occupational exposure assessments purposes rely mostly on air sampling (active methods). In Portugal, occupational health concern has been increasing, and efforts have been made to standardize exposure assessment procedures in occupational environments <sup>1,2</sup>. However, these are currently not adapted to health care facilities. Therefore, a national and international network - **EXPOSE Project** - of academic institutions, in direct collaboration with public health institutions, developed a project aiming to propose a sampling protocol to assess occupational exposure to bioburden in clinical facilities.

## Materials and Methods

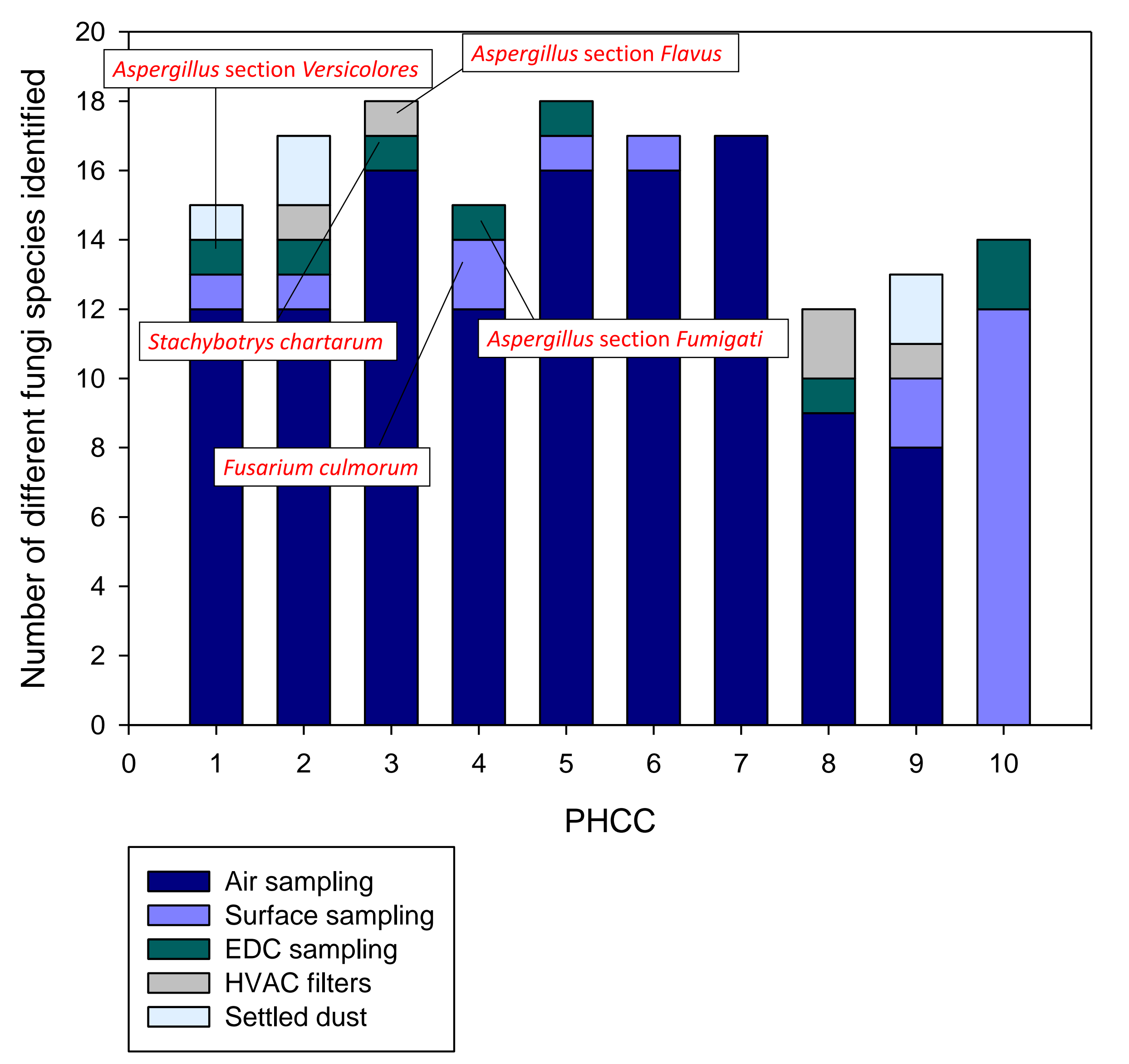


## Results

- EDC was the passive sampling method with higher bioburden load on MEA, whereas on DG18, surface swabs presented higher load.
- Toxigenic fungal species were identified on air samples although ratio I/O complied with Portuguese Legislation (table 1).
- Different fungal species were observed in all the sampling methods applied (Figure 1).

Table 1 – Air fungal load indoor and outdoor ratio in each 10 PHCC and presence of toxigenic fungal species. The values in red represent the PHCC where the mycobiota indoor is superior to the outdoor value.

PHCC	[indoor] / [outdoor]	Presence of toxigenic species
1	0,20	+
2	3,25	+
3	0,78	+
4	1,55	-
5	3,03	+
6	0,68	+
7	3,39	+
8	1,37	-
9	1,00	+
10	2,50	+



## Discussion and conclusions

- Passive-collection methods enable the collection of contamination from a larger period of time (days, weeks or several months), whereas air samples can only reflect the load from a shorter period of time (mostly minutes)<sup>4</sup>.
- A multi-approach on sampling methods should be implemented to obtain not only the bioburden load, but also the contamination.
- This sampling protocol will allow an enriched occupational exposure assessment and a more real risk characterization.

## Acknowledgments

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## References

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