

Emergent pan-azole-resistant *Aspergillus fumigatus* in poultry farms: Implications for One Health

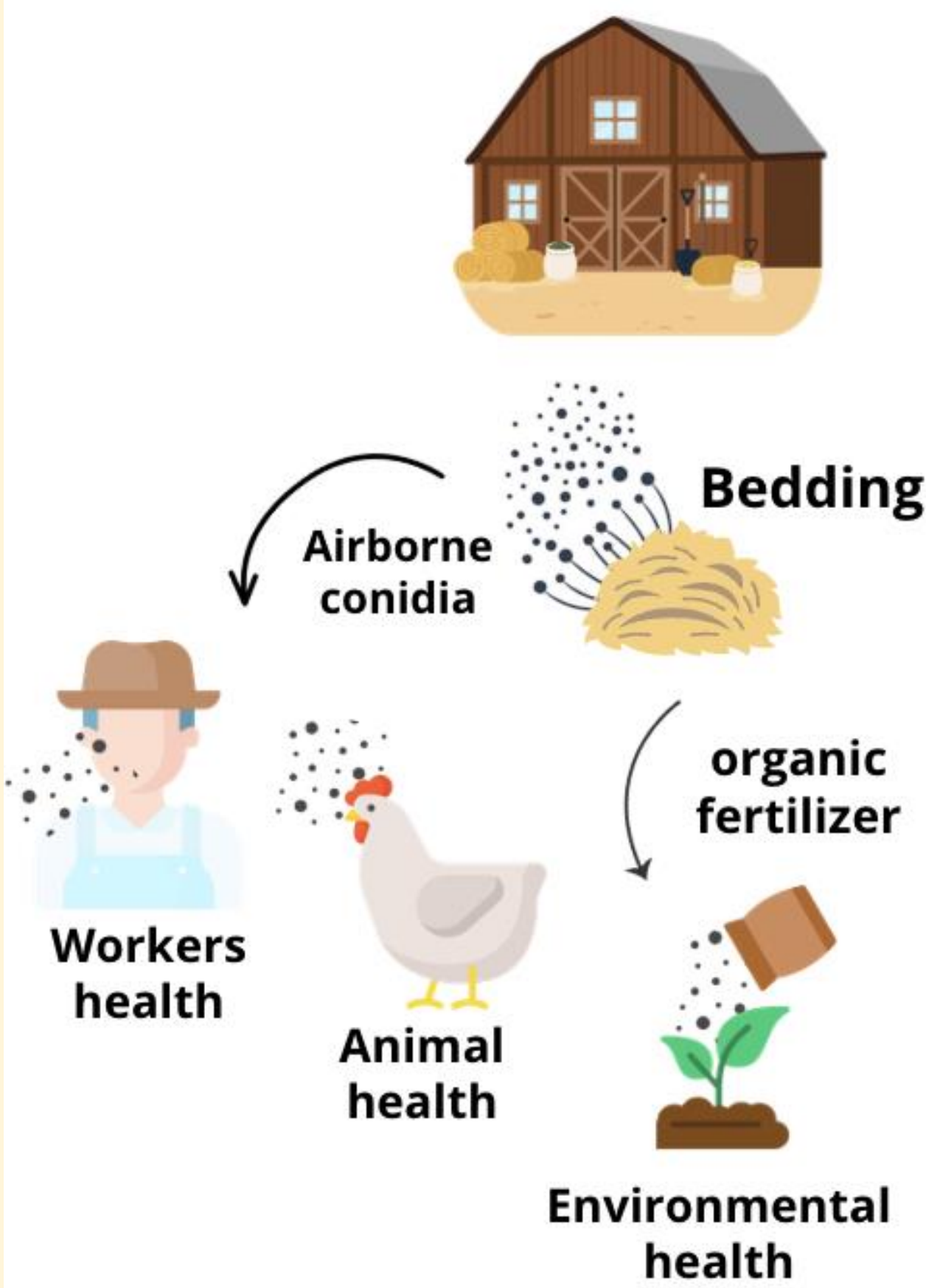
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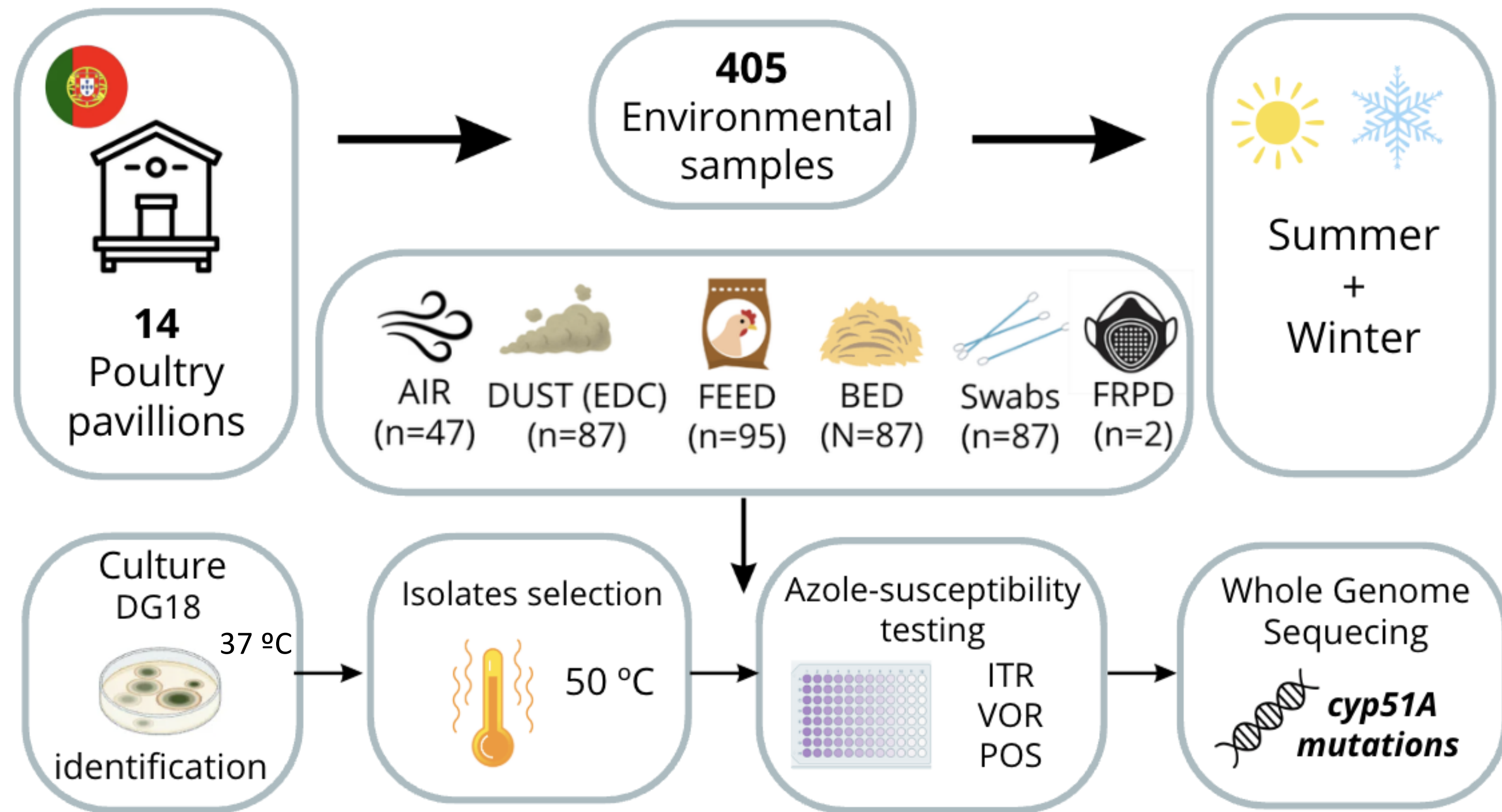
Introduction:

- Aspergillus fumigatus* is the leading etiological agent of aspergillosis in humans and animals [1,2].
- Azole resistance is an emerging public health concern [1,2].
- Poultry bedding material may act as an environmental reservoir for azole-resistant *A.fumigatus* [3].
- Understanding environmental reservoirs is essential to mitigate potential risks across the human-animal-environment interface [4].



Objective: To assess the occurrence of azole-resistant *Aspergillus fumigatus* in Portuguese poultry farms

Methods:



Results and discussion:

Aspergillus spp. identification

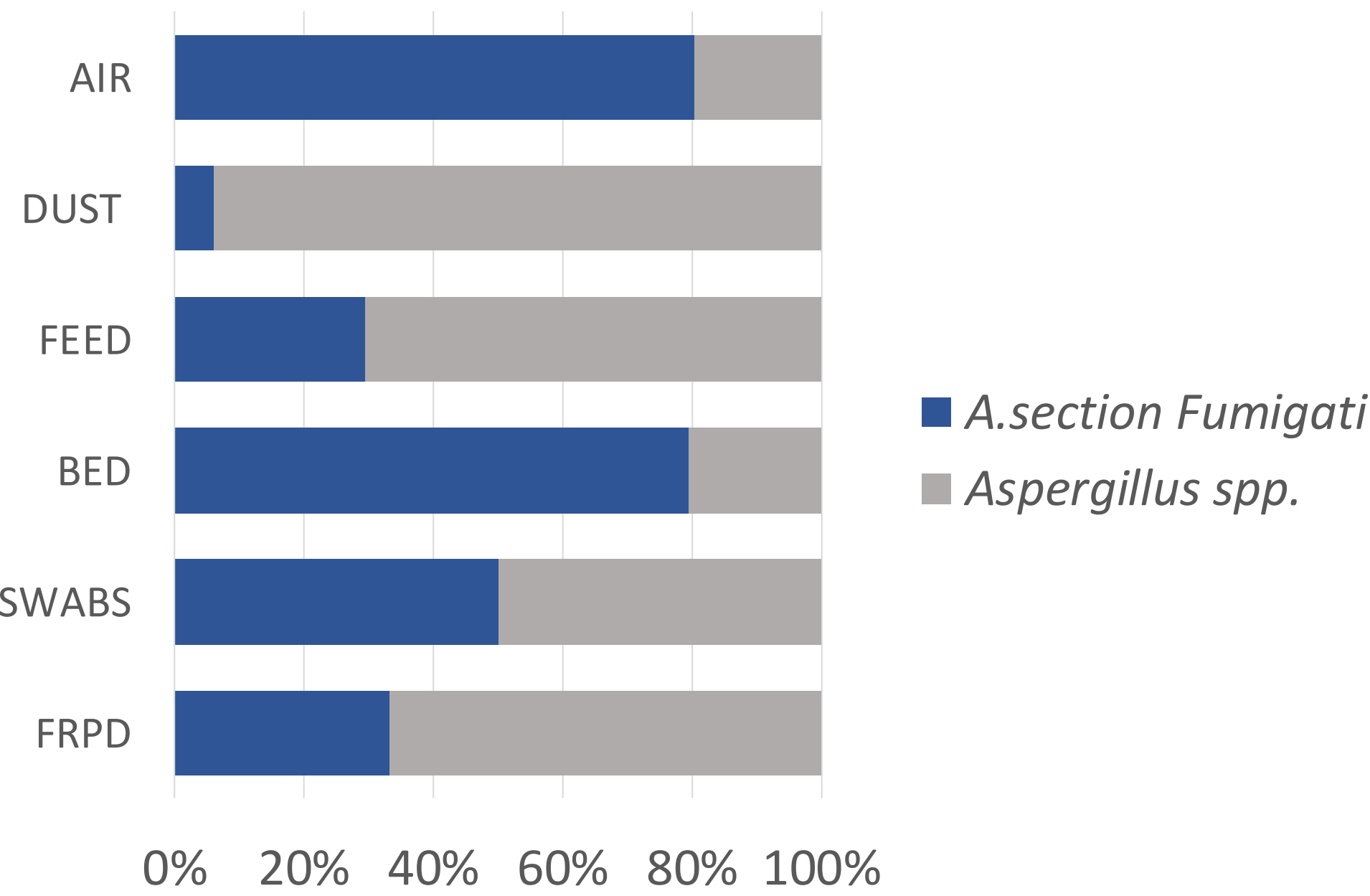
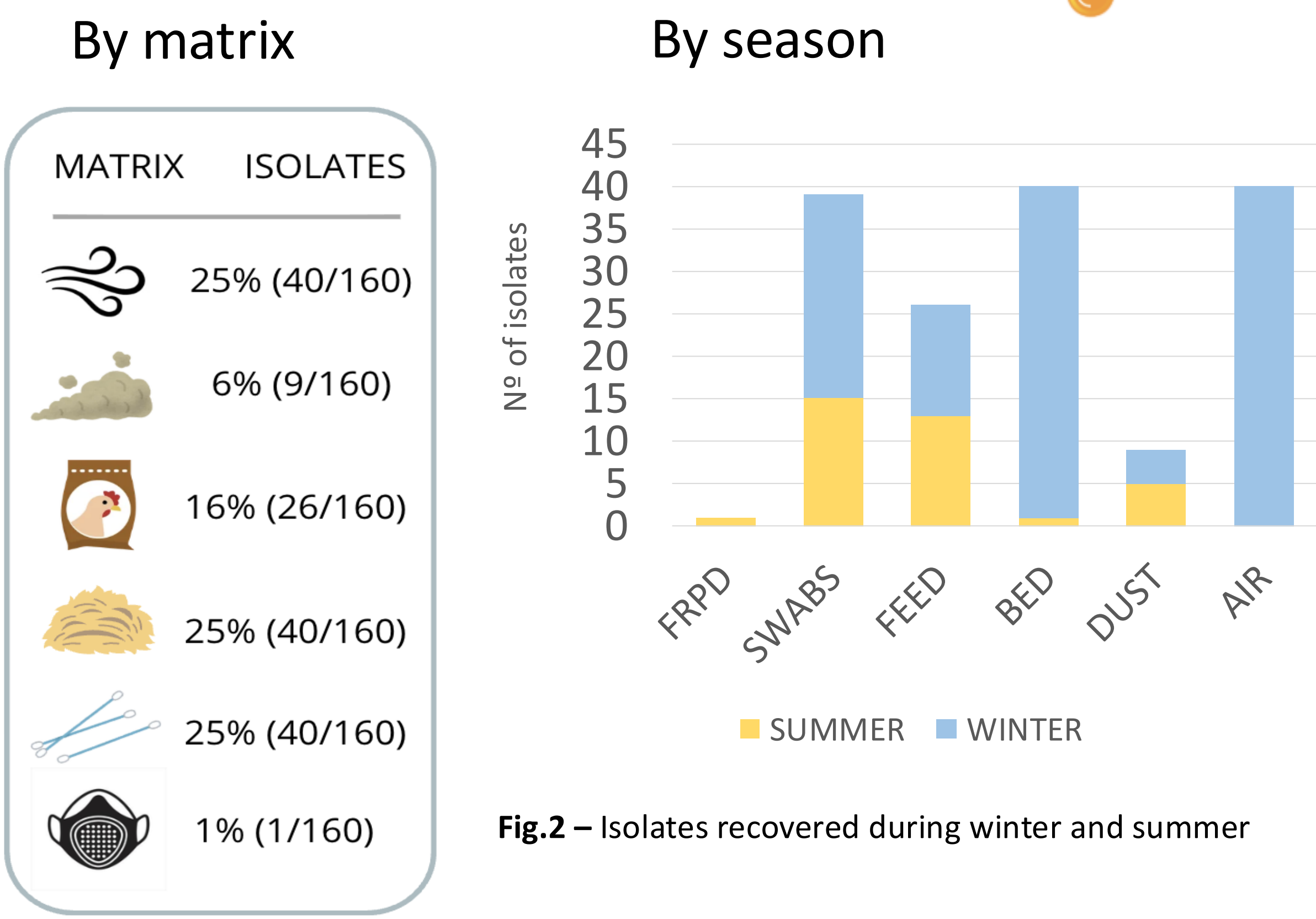


Fig.1 – *Aspergillus* section *Fumigati* prevalence (incubation 37 °C)

Incubation at 37°C predominantly recovered *Aspergillus* section *Fumigati*, which is consistent with the thermotolerant nature of this species [5,6]

Growth at 37°C is considered a proxy for pathogenic potential, reflecting the ability of these fungi to survive and colonize the human host [5,6]

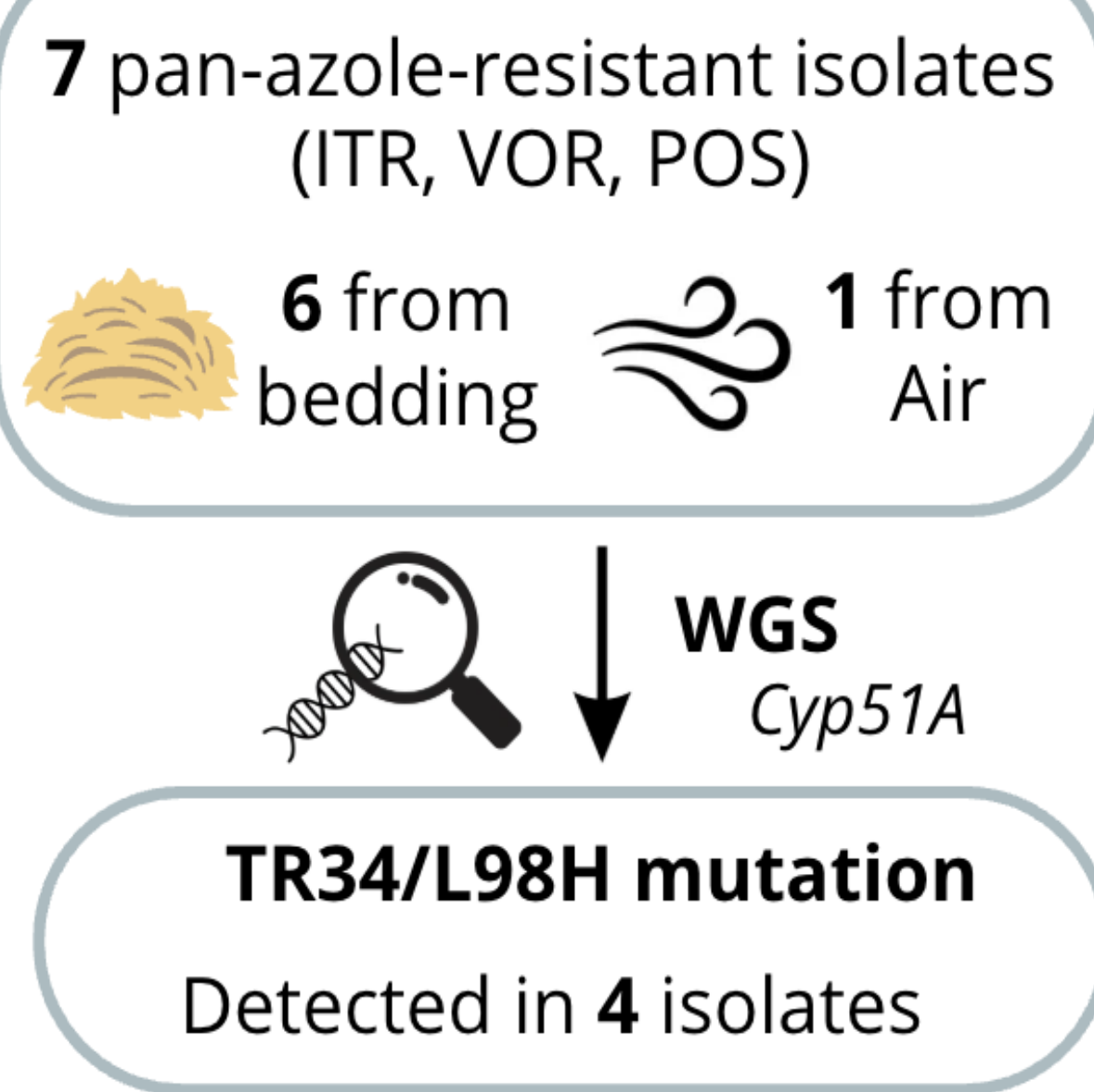
Putative *A.fumigatus* isolates selection



Most isolates (n=160) were recovered during winter, mainly from air (n=40/160) and bed (n=40/160) samples,

Reduced ventilation and increased humidity likely create favourable conditions for fungal proliferation in bedding material [7].

Azole resistance screening



Bedding and air are important matrices in which resistant isolates may occur, as previously suggested [3,7]

Four isolates carried the TR34/L98H mutation, a recognized environmentally associated mechanism of multi-azole resistance [1,2]

The detection of resistant strains in one air sample emphasizes the increased exposure risk for both workers and animals [8].

Conclusions

- ✓ Poultry farm environments harbour thermotolerant *Aspergillus* section *Fumigati*, highlighting the presence of fungi with pathogenic potential.
- ✓ Pan-azole-resistant *A. fumigatus*, including TR34/L98H isolates may occur in poultry farms.
- ✓ Bedding material represents an important matrix in which resistant isolates may occur.
- ✓ Detection of a resistant airborne isolate highlights potential implications for animals and workers health and environmental dissemination.

These findings reinforce the importance of **integrated surveillance across the human-animal-environment interface to mitigate the spread of antifungal resistance.**

This study contributes to SDGs by supporting One Health approaches to **public health (SDG 3), safe working environments (SDG 8), and environmental health (SDG 15).**

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References

