

Sample extraction for quantification of mould antigen

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CONTEXT

To assess exposure to mould antigens, **enzyme immunoassays for *Aspergillus fumigatus* and *Penicillium chrysogenum* antigens** had been developed. After different extraction procedures with Precellys homogenization or mixing only, the **antigen yields of airborne dust samples** were compared and one method was defined [1].

MATERIAL

- Precellys 24 Dual & Cryolys cooling option (+4°C).
- Precellys lysing kit: SK38_2ml (03961-1-006), SK38_7ml (03961-1-303)
- Samples: Parallel sampled Teflon filters with airborne dust from composting plants.
- Phosphate buffered saline with 0.05% Tween 20.

PROTOCOL

- Precellys 24 Dual: 6000 rpm, 3x20 sec, 30 sec break with cooling vs mixing only.
- Enzyme immunoassays: *Aspergillus fumigatus* and *Penicillium chrysogenum* based on polyclonal rabbit antibodies.

[1] Sander I, Zahradnik E, van Kampen V, Kespohl S, Stubel H et al. (2012) Development and application of mold antigen-specific enzyme-linked immunosorbent assays (ELISA) to quantify airborne antigen exposure. *J Toxicol Environ Health A* 75: 1185-1193.



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RESULTS

For extraction of airborne dust parallel sampled on 10 Teflon filters in composting plants, the SK38 - 6000 rpm homogenization procedures (mixed only, Precellys homogenization, with filter removed or not) were applied. With Precellys SK38 homogenization, *A. fumigatus* and *P. chrysogenum* antigen yields were higher than by mixing only irrespective of the mode of filter removal. Higher antigen amounts were obtained for both volumes of homogenization: 2mL (Fig. 1) or 7mL kit, with 1mL or 3mL of buffer, respectively.

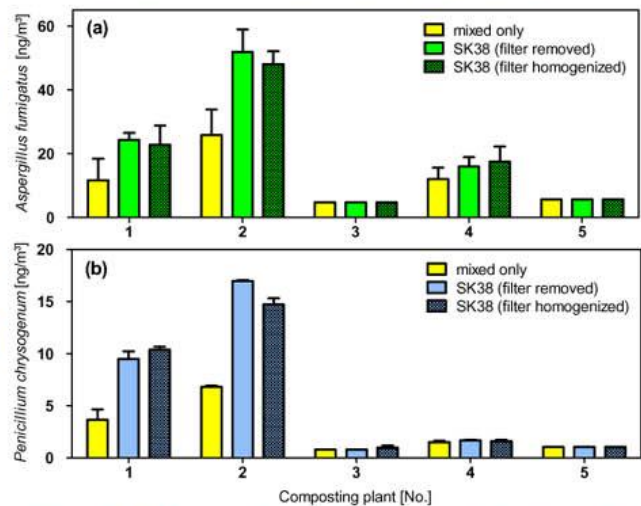


Figure 1: In 5 composting plants, airborne dust was sampled on Teflon filters with a Parallel sampler. The *Aspergillus fumigatus* (a) or *Penicillium chrysogenum* (b) antigen yields after extraction in 2 ml Precellys tubes were measured by enzyme immunoassays (mean of 2 filters per procedure).

CONCLUSION

The antigen amounts of samples with fungal material were increased after extraction and homogenization with the **combo Precellys 24 Dual & Cryolys and SK38 kit**.

To **assess fungal antigen exposure of airborne dust**, this sample preparation using Precellys homogenization was the method of choice.

For more details, please contact precellys@bertin.fr

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