Airborne latex allergens control in hospital environments

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Context

Latex products use have increased a lot over last 20 years with a considerable incidence on allergy to latex (single-use products). **Latex sensitivity in the healthcare environment** is an health problem, particularly, children poly-operated as Spina bifida patients and sanitary operators are concerned.
In this pilot study, we carried out the **environmental monitoring of latex allergen** in three different places in order to get quantitative data on airborne latex allergens in specific risky environments.
(1- a room of our laboratory in full operation and use of latex gloves, 2- an operating pediatric surgery room during normal activities, 2'- during activities in latex safe conditions and 3- near nursery room).

Material

- Coriolis®µ, sterile cones, 15 ml of sterile collection liquid.
- Traditional method on PTFE filters (25 mm Ø - 1µm).
- ELISA tests (Indoor Biotechnologies).

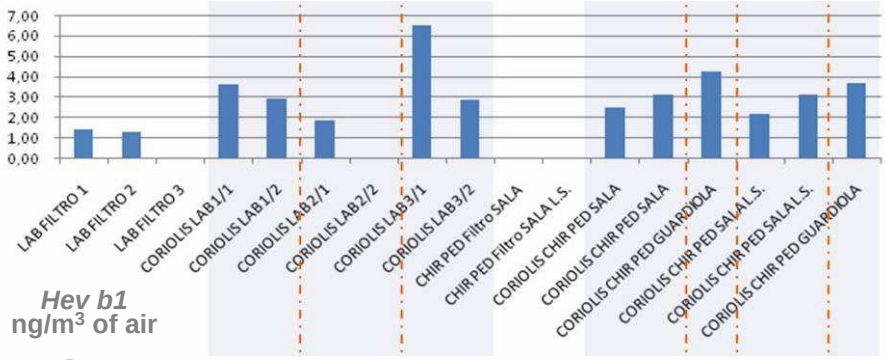
Protocol

- Coriolis®µ: 2x20 min sampling for 3 days - 250 L/min - Quantification of liquid, sub-division, storage at -80°C.
- PTFE filters: 24 hours continuously sampling for three days -14 L/min - Allergen extraction overnight in PBS, centrifugation, sub-division, storage at -80°C.
- Specific ELISA tests for allergens: *Hev b1, Hev b3, Hev b5, Hev b6.02.*

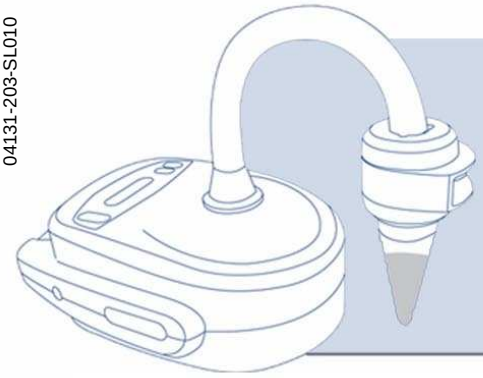
Results

- The results for *Hev b1* (ng/m^3), *Hev b5* and *Hev b6.02* show the efficiency of the Coriolis air sampler to collect airborne latex allergens; *Hev b1* results are illustrated in the graph for the three rooms and for both equipments.

Coriolis vs. PTFE positive data :
- *Room 1: 5+/6 vs. 2+/3*
- *Room 2: 2+/2 vs. 0+/1*
- *Room 2': 2+/2 vs. 0+/1*
- *Room 3: 2+/2*



Hev b1
ng/m^3 of air



Conclusion

These preliminary results indicate that Coriolis®µ is a suitable method for **the sampling of airborne allergen of latex** by reducing the time of sampling (20 min vs. 24h) and increasing the efficiency.
Furthermore, the Coriolis®µ air sampler collects any airborne particles and can also give information on specific airborne microorganisms, pollens, viruses…

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