coriolis
Microbial Air Sampler

AIRBORNE ENDOTOXINS DETECTION IN OFFICES

RNSA Laboratoire, France

/ CONTEXT

Endotoxin is a structural component produced by Gram-negative bacteria which are common in the environment, particularly in water or in water damaged conditions. It has been associated with many respiratory symptoms and complaints related to the indoor environment including agricultural & industrial sites, waste processing and offices.

RNSA Laboratoire has been requested to do an audit about the air quality in offices where employees suffer from specific symptoms. The objective was to measure the level of exposure to endotoxins in various spaces (Lobbies (L), meeting rooms (MR), offices (O) and open space (OS)).

Comparison sampling with the Coriolis®µ have been carried out in October 2009 between suspect areas and non suspect ones under similar environmental conditions. The collected endotoxins were analyzed by the standard analytical method, LAL assay (Limulus amebocyte lysate).

/ MATERIALS

- Coriolis®µ, sterile cones, 15 mL of pyrogen-free water with 0.005% of triton.
- Spectrophotometer.

/ PROTOCOL

- Coriolis®µ (n=12): 10 min - 300 L/min ➔ 3 m^3 sampling.
- LAL Kinetic colorimetric assay (results in about 15 min).

/ RESULTS

High levels of endotoxins have been measured in almost all areas of the building excepted in one of the office (n°3).

These exposure levels of endotoxins have to be taken into account considering that a concentration around 200 EU/m3 could already cause irritation effects in the respiratory system (literature).

The samples collected in a short time (10 min) are representatives of the areas studies (3 m3 each).
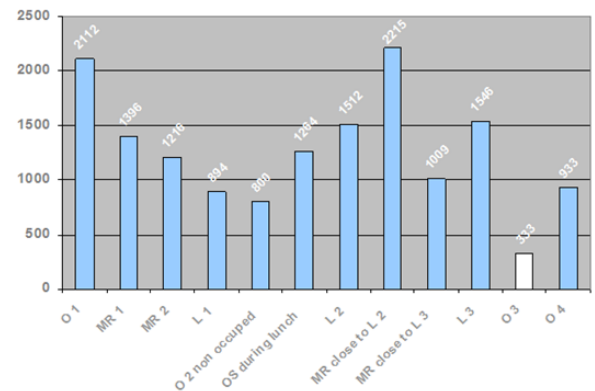

/ CUSTOMER

/ CONCLUSION

These preliminary results indicate that Coriolis®µ is an efficient method for the sampling of airborne endotoxins in workplaces (such as office buildings, cotton mills agriculture or wastewater treatment facilities, industrial washwater mists and contaminated room humidifiers...). The reduced time of sampling (10 min – 3 m^3) is an advantage in contrast with former methods with longer sample duration and lower air volume (2 / 8 hours – up to 1 m^3).

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