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New generation AIR SAMPLER
Quick & reliable air control

Capture of volatile compounds with Coriolis® air sampler - Formaldehyde model*

Leeds University (UK) - Faculty of biological Sciences

Context

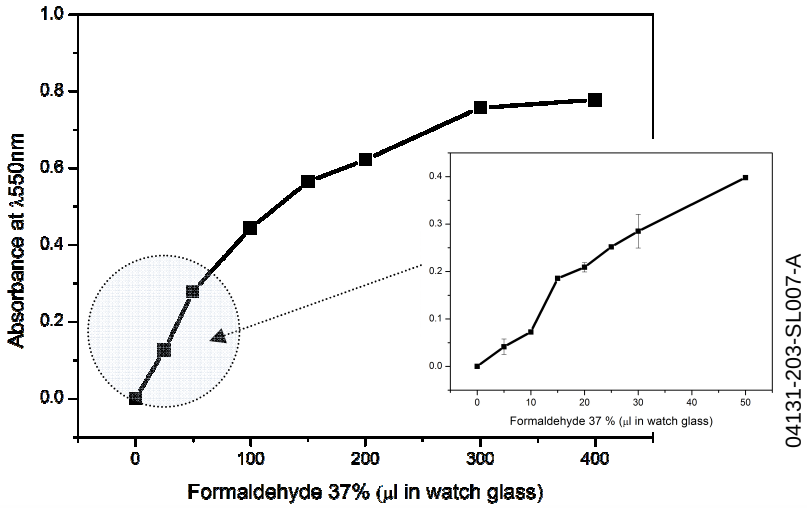
The aim of this study is to assess the efficiency of the Coriolis® µ air sampler for the active capture of volatile compounds. Formaldehyde has been chosen as a suitable model volatile due to its high volatility, low molecular weight (30 MW) and ease of detection.

Material & methods

- Rising scale of formaldehyde amounts in a watch glass placed in front of a fan in a 7m^3 environmental room at 20°C – 0 up to 400 µl of a 37% stock solution of formaldehyde.
- Air sampling protocol: Coriolis® µ ; 10 minutes sampling with 15 ml PBS starting volume; N =3.
- Detection of formaldehyde: Purpald colorimetric assay described by Quesenberry and Lee (1996)*.
- Sensitivity reported of up to 1 nmol formaldehyde. Absorbance at λ550 nm.

Results

- Coriolis® µ is able to detect <5 µl of a 37 % solution of formaldehyde in a very short sampling time (10 min), equivalent to 264 µg.m^{-3} formaldehyde at 20°C.
- Further assays on experimental parameters (i.e. sample volume) may further increase the sensitivity and extraction efficiency of the air sampler.



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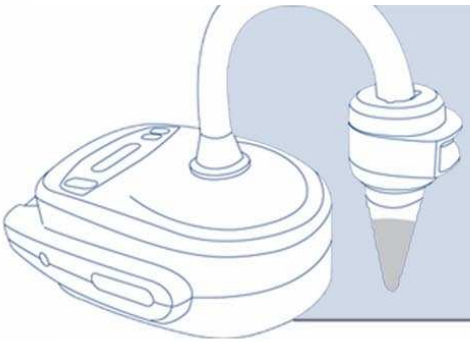
* Quesenberry M.S., and Lee, Y.C. A rapid Formaldehyde Assay Using Purpald Reagent: Application under Periodation Conditions (1996) Analytical Biochemistry 234 pp. 50-55



Conclusion

The Coriolis® µ is efficient for the capture of very low concentrations of formaldehyde in a very **short sampling time.**
Coriolis® µ air sampler is thus suitable for the capture of volatile compounds. Furthermore, with a liquid sample, analytical methods as HPLC, MS can be implemented. Applications are the airborne **pesticide drift, outdoor or indoor monitoring of volatile compounds**…

www.coriolis-airsampler.com
coriolis@bertin.fr
Phone: +33(0) 139 306 070
Fax: +33(0) 139 306 185