CAMAG Laboratory Services

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Dear reader

Over the last months CAMAG Laboratory noticed an increasing number of requests for laboratory service. The majority of clients was asking for feasibility studies concerning their analytical problems. Other customers wanted optimization of existing methods. All cases required a systematic method development and a certain level of validation regardless of whether the analytical goals were qualitative, semi-quantitative, or quantitative.

The requests for service came from different industries. We signed contracts in various fields of application including analysis of botanicals, food and beverages, cosmetics and veterinary drugs. Also pharmaceutical companies have been among our clients.

Aside of contract work we also develop methods for the public domain. Interested parties can download for free more than one hundred application notes.

If you like to request a service of CAMAG Laboratory please complete our form at **www.camag.com/laboratory/services/index.html**: request service. We will contact you for further discussion.

We look forward to working with you

News & Events

Course USP

TLC for Dietary Supplements: Botanicals
www.usp.org/education/pe/courses.html?course_id=81

- October 30, 2008 Salt Lake City, UT
- November 5–6, 2008 Irvine, CA

Courses in Muttenz

- "Grundlagen der modernen Dünnschicht-Chromatographie" (German)
  13–14 October 2008
- "HPTLC zur Analyse von Heilpflanzen und Phytopharmaka" (German)
  15–16 October 2008
- "Modern Thin-Layer Chromatography" (English)
  11–14 November 2008

CAMAG flash
October 2008

Method development – the key to success in HPTLC

Method development is a common task for laboratories performing chromatography. Generally methods are sought, which are rapid, fit for purpose, inexpensive, and reliable. Precision and accuracy are not just important during validation for compliance with cGMP but also of concern for the daily analytical routine. Method development, optimization, and validation must be considered as an integrated process.

It starts with suitable **sample preparation**. Here HPTLC offers an important advantage due to the fact that chromatographic plates are disposable. Matrix does not have to be eluted as in column chromatography. This may simplify the separation. A selective solvent for the extraction of target compounds may be desirable. For qualitative analysis sonication with methanol for 10 min is a good starting point. Different extraction solvents and extraction methods or times can be compared on the same HPTLC plate.

As **stationary phase** silica gel is most widely used because it can separate many substance classes based on type und number of functional groups. Alternatively reversed and polar bonded phases are also available. Why not try out an amino phase for separation of carbohydrates or phenolic compounds of different conjugation?

One of the most challenging steps in method development is the selection of the appropriate **mobile phase**. The great choice of solvents and almost unlimited possibilities for combinations offer extreme flexibility but can also be overwhelming. The first step should always be a thorough literature search i.e. in the comprehensive database CCBS (**http://www.camag.com/cbs/ccbs.html**).

For method development from scratch a guided trial and error approach can be recommended. More information on this can be found in our brochure "TLC/HPTLC method development" (**www.camag.com/brochures**) or in textbooks such as [1] (p.182 ff). Whether optimization or method development is performed the HPTLC Vario-System can make finding a suitable mobile phase easier because 6 runs with different solvents can be performed in parallel on a 10 x 10 cm plate (picture below).

The possibility of convenient chemical **derivatization** is another strength of HPTLC. Numerous reagents, specific or non-specific are known. Not only for visualization but also to improve detection limits of quantitative determinations and to introduce chromophoric groups into a molecule, derivatization may be suitable. For a wide range of popular reagents and their use please consult the literature [2].

Method development is a complex subject, but it is worth taking it seriously. Your routine analytical laboratory will thank you!

Literature:

[1] Reich E. and Schibli A., HPTLC for the analysis of medicinal plants, Thieme 2007.

[2] Jork H., Funk W., Fischer W. and Wimmer H., Thin Layer Chromatography, Volume 1a, and b, VCH 1990/1994.

CAMAG HPTLC Vario-System Cat # 022.8550