the nature network®

PhytoLab

Trace Analysis for Herbal Products

phy|trace®

Tracing of Contaminants

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Trace analysis begins as early as the raw material stage. In spite of exercising maximum care, herbal raw materials may be contaminated by numerous substances from various sources as a result of environmental factors, selective use, or as a consequence of natural processes, for example. The heterogeneous physico-chemical properties of the substances, the diversity of the herbal matrices and divergent statutory requirements impose very high demands on the analytical laboratory.

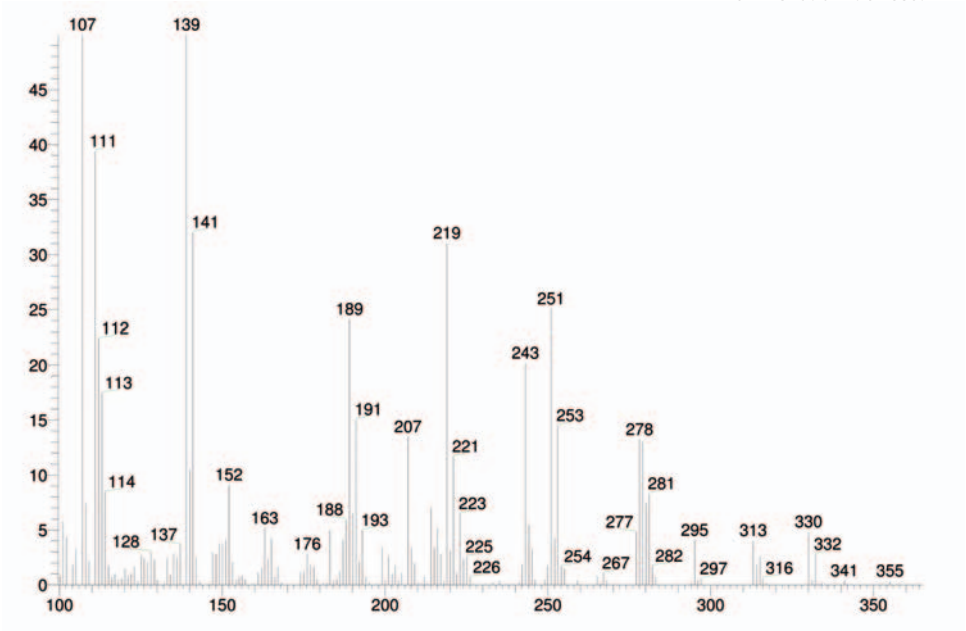
With more than 15 years of experience in analysing residual substances in plant-based products, PhytoLab now offers a comprehensive package of services that covers all issues relating to residue analysis and evaluation under the name **phy**trace®.

- herbal product specialists
- trace analysis: pesticides, mycotoxins, heavy metals etc.
- method development and validation
- accredited laboratory with GMP certification

Herbal Product Specialists

Herbal products present a special challenge in terms of trace analysis because they have such a multifarious spectrum of constituent substances. The analysis of residual traces is complicated to a considerable extent by matrix substances, which are present in much higher concentrations in some cases, particularly in dried herbal materials. This can easily give rise to falsified results – negative or positive – if laboratory personnel do not have sufficient experience with herbal matrices.

At the same time, the detection, analysis and evaluation of residues constitute an important task when it comes to risk assessment. Based on the experience gathered over many years, we can offer you comprehensive advice on the contamination situation of individual products or different origins. PhytoLab specialises in the highly complex matrix of dried herbal products, herbal extracts and essential oils that presents such a challenge in terms of analysis. We therefore not only offer our customers various alternative analytical means of confirming findings, but also provide assistance in the legal interpretation of findings and causal research.



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Trace Analysis

Unwanted residues in the trace range essentially include pesticides, mycotoxins and heavy metals, as well as other contaminants.

Pesticides can get into the product when plant protectives are used on crops in the field, in storage or as a result of cross-contamination.

Mycotoxins are secondary metabolic products of moulds and also include highly toxic, carcinogenic, mutagenic or teratogenic compounds. The most widely distributed mycotoxins include the aflatoxins, ochratoxin A, patulin, zearalenone, fumonisins and trichothecenes.

Heavy metals may be taken up by plants out of the soil, from the water or the air. Attention is focussed on the highly toxic heavy metals lead, cadmium and mercury, as well as other metals.

Method Development and Validation

There are no official methods available for a large number of contaminants, e. g. determining ochratoxin A in liquorice and liquorice products. The results obtained by different laboratories may therefore vary considerably if different procedures are applied. Methods employed to analyse residues are usually subject to a very high uncertainty of measurement (e. g. pesticide multimethods) and require matrix-specific validation in some cases (e. g. aflatoxin procedure). PhytoLab has played an important role in developing and establishing methods and procedures in the food and pharmaceutical sectors. We offer procedures that we have validated for specific groups of matrices. In doing so, we not only apply official procedures (e. g. modular multimethod for pesticides in accordance with DFG S19), but also methods that have been specially developed for a particular purpose (e. g. ICP-MS for heavy metals, LC-MS/MS for phenoxyalkane carboxylic acids).

Accredited Laboratory with GMP Certification

PhytoLab gives top priority to quality assurance. PhytoLab has been accredited in accordance with DIN EN 17025 for all laboratory fields, therefore including all aspects of residue analysis, and is authorised to test official control food and drug samples. Furthermore, PhytoLab has GMP certification and has the authority to carry out tests on drugs in its capacity as a company commissioned in accordance with the stipulations of § 14 (4) of the German Drug Law (AMG). By taking part in national and international proficiency testing schemes organised by reputable agencies (e. g. FAPAS, GDCh) on a regular basis, we have our performance continuously and successfully reviewed by independent organisations.

Increasingly stringent statutory requirements and growing expectations on the part of the consumers demand maximum information content and ultimate reliability in the analysis of residues in herbal drugs and food today. These demands can only be met in a highly specialised laboratory environment with rigorous quality assurance. With state-of-the-art analytical technology and a team of experts with many years of experience, PhytoLab offers you analytical competence and security in the assessement of results.

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