

CAS ANALYTICAL METHODS™

**BETWEEN TARGET
AND FOCUS
THERE IS
ILLUMINATION**

Save time with access
to easy-to-read methods

CAS

A division of the
American Chemical Society



Analytical scientists are a critical component of development

CAS Analytical Methods makes it simple to locate, compare, and understand analytical methods from top journals and patents.

10 years and \$3-5B

Average development time and cost of a new drug in pharma^{1,2}

2-7 years

Average development time of a product line extension in specialty chemicals³



CAS Analytic Methods is the solution that propels your analysis

For more than 100 years, CAS Solutions has provided the tools and expertise that scientists rely on. This hindsight, insight, and foresight inspire everyday breakthroughs and life-changing science.

CAS monitors the market addressing common obstacles, such as:

- **Disparate Data Sources**
Spend time searching online, using expensive consultants, and scouring primary literature
- **Insufficient Content**
Lack of methods within primary literature or limited resources
- **Time Pressure**
Understanding there is little time allotted to produce a safe and effective product

The screenshot displays the CAS Analytical Methods web application interface. At the top, there is a navigation bar with the CAS logo, 'Analytical Methods' text, and a search bar containing the text 'Browse: Active Pharmaceutical Ingredient and Metabolite Analysis'. To the right of the search bar are icons for search, favorites, and user profile.

The main content area is titled 'Results (94949)' and includes a 'Sort Relevance' dropdown. Below the title, there are icons for download, star, and compare (0/3). A search result is displayed with the following details:

- Analysis of (-)-Tetracycline in Urine by HPLC UV detectors**
- CAS MN: 1-101-CAS-468487
- Buttons: View Details & Instructions, Add to Compare
- Analyte:** (-)-Tetracycline; Chlortetracycline; Oxytetracycline
- Matrix:** Urine
- Other Materials:** Reagent: Sodium hexanoate; Zinc sulfate; Hydrochloric acid; Methanol
Material: 0.45 µm membrane filter; SUPELCO C18 column (250 mm ×4.6 mm, 5 µm); Hydrophobic poly(vinylidene fluoride-co-tetrafluoroethylene) (PVDF-CO-PTFE) membrane
[View All](#)
- Method Category:** Active Pharmaceutical Ingredient and Metabolite Analysis
- Technique:** Liquid-liquid microextraction; Atmospheric precipitation; HPLC UV detectors
- Equipment Used:** Digital stirrer; HPLC-UV system
- Source:** Stir membrane liquid phase microextraction of tetracyclines using switchable hydrophilicity solvents followed by high-performance liquid chromatography
Lebedinets, Sofya; Vakh, Christina; Cherkashina, Ksenya; Pochivalov, Aleksei; Moskvina, Leonid; Bulatov, Andrey
Journal of Chromatography A (2020), 1615, -. Elsevier B.V.

On the left side of the interface, there is a sidebar with navigation options: 'Return to Home', 'Analyte' (with a list of categories like Acetaminophen, Flavonoids, Phenols, Ciprofloxacin, Ibuprofen), 'Matrix' (with a list of categories like Pharmaceutical tablets, Blood plasma, Urine, Blood serum, Pharmaceutical capsules), 'Method Category', 'Technique', and 'Year'. Each category has a 'View All' link.

CAS Analytical Methods provides a single resource during analysis

CAS Analytical Methods addresses the challenges that analytical scientists face, such as time pressure, lack of process, lack of method details in literature, and limited resources. With this solution, it is easy to browse and find methods that may have not existed in or are buried in primary literature.

It allows analytical scientists to tap into creative problem-solving while being comprehensive to engage a variety of work that you face. The step-by-step methods help shorten research time, allowing projects to move swiftly toward completion.

Fast

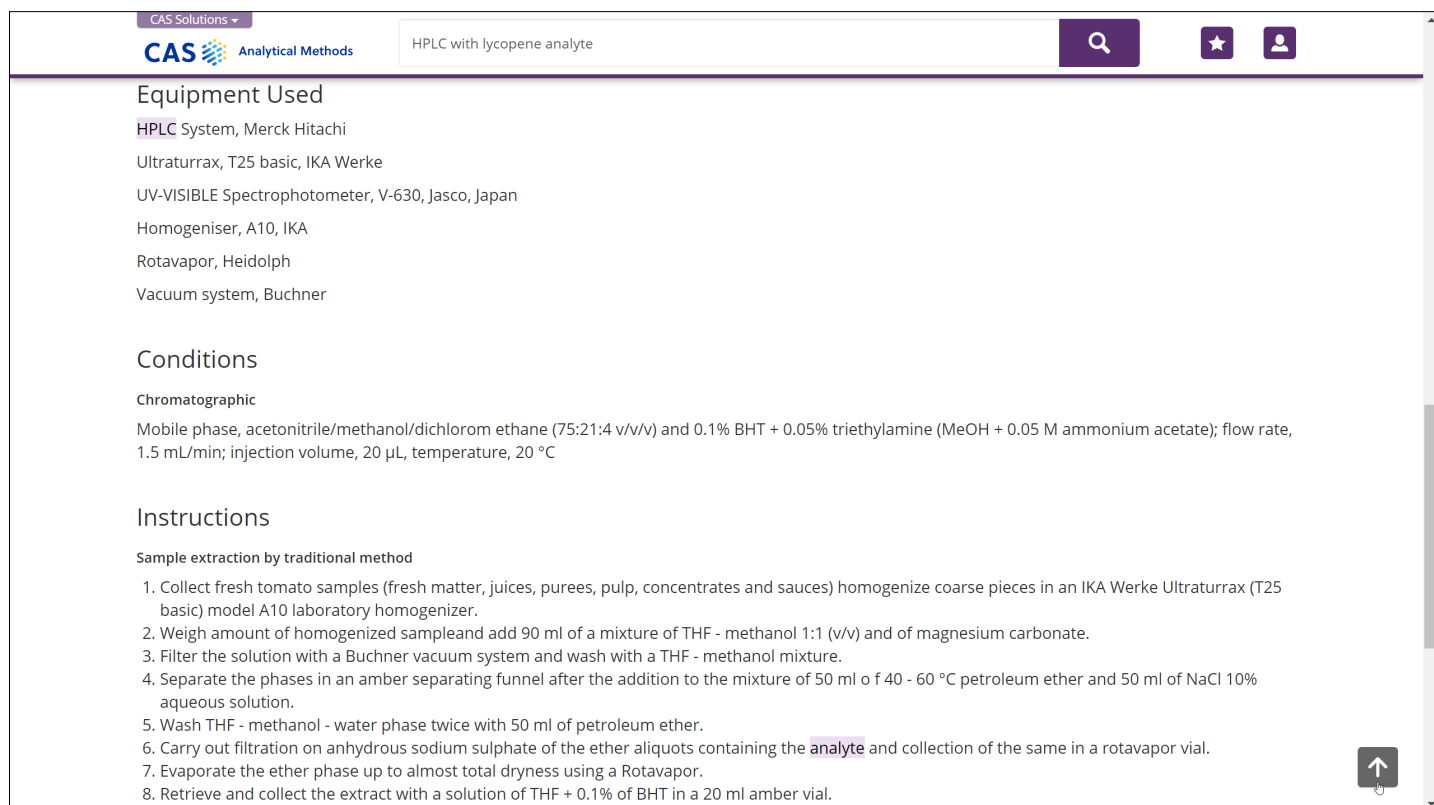
77% of surveyed organizations said that shorter time is most important to them when using CAS Analytical Methods¹.

Efficient

CAS Analytical Methods brings together information from multiple sources into a single solution that increases efficiency and effectiveness.

Comprehensive

72% of surveyed organizations said that the step-by-step methods are crucial to their work.²



The screenshot displays the CAS Analytical Methods web interface. At the top, there is a search bar containing the text "HPLC with lycopene analyte". Below the search bar, the interface is divided into three main sections: "Equipment Used", "Conditions", and "Instructions".

Equipment Used

- HPLC System, Merck Hitachi
- Ultraturrax, T25 basic, IKA Werke
- UV-VISIBLE Spectrophotometer, V-630, Jasco, Japan
- Homogeniser, A10, IKA
- Rotavapor, Heidolph
- Vacuum system, Buchner

Conditions

Chromatographic

Mobile phase, acetonitrile/methanol/dichlorom ethane (75:21:4 v/v/v) and 0.1% BHT + 0.05% triethylamine (MeOH + 0.05 M ammonium acetate); flow rate, 1.5 mL/min; injection volume, 20 µL, temperature, 20 °C

Instructions

Sample extraction by traditional method

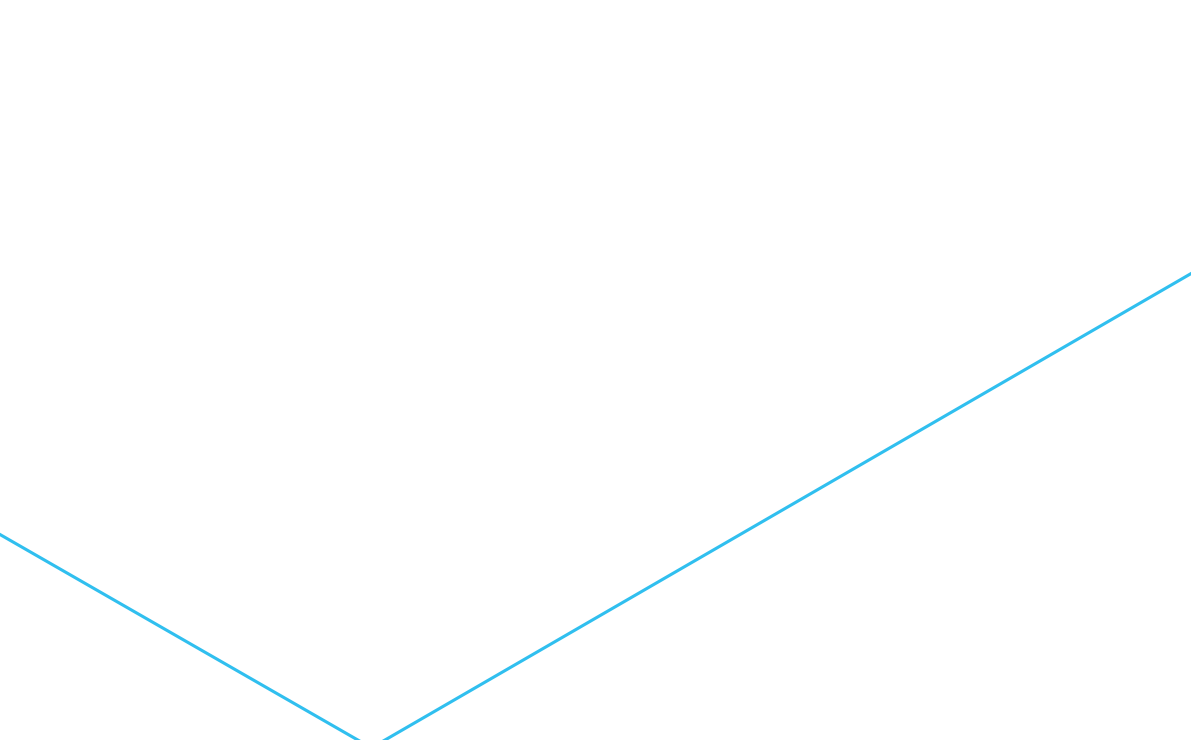
1. Collect fresh tomato samples (fresh matter, juices, purees, pulp, concentrates and sauces) homogenize coarse pieces in an IKA Werke Ultraturrax (T25 basic) model A10 laboratory homogenizer.
2. Weigh amount of homogenized sample and add 90 ml of a mixture of THF - methanol 1:1 (v/v) and of magnesium carbonate.
3. Filter the solution with a Buchner vacuum system and wash with a THF - methanol mixture.
4. Separate the phases in an amber separating funnel after the addition to the mixture of 50 ml of 40 - 60 °C petroleum ether and 50 ml of NaCl 10% aqueous solution.
5. Wash THF - methanol - water phase twice with 50 ml of petroleum ether.
6. Carry out filtration on anhydrous sodium sulphate of the ether aliquots containing the analyte and collection of the same in a rotavapor vial.
7. Evaporate the ether phase up to almost total dryness using a Rotavapor.
8. Retrieve and collect the extract with a solution of THF + 0.1% of BHT in a 20 ml amber vial.



“CAS Analytical Methods gives me easy access to look at multiple methods in a very organized and clear way. The refining tool by technique is very good.”

— Ofir Itzhaki, R&D manager/team leader,
Fermentek Biotechnology

*TechValidate TVID: 81A-4E1-795



“You can learn many ways to make the desired product. Quick and easy access to the experimental procedures needed to make the desired products. So it has led to increased efficiency in our work.”

—Kouji Kamura, faculty, Tokyo University of Technology

*TechValidate TVID: F79-D71-311



Leaders across R&D organizations rely on CAS

PHARMA

48 of the
TOP 50
pharma companies¹

ACADEMIC

100 of the
TOP 100
universities²

GOVERNMENT

10 of the
TOP 10
global patent offices³

BIOTECH

25 of the
TOP 25
biotech companies⁴

CHEMICAL

44 of the
TOP 50
chemical companies⁵

1. <https://www.pharmexec.com/view/2021-pharma-50>. 2. <https://www.shanghairanking.com/rankings/gras/2021/RS0103>. 3. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_943_2020.pdf. 4. <https://www.investopedia.com/articles/markets/122215/worlds-top-10-biotechnology-companies-jnj-rogvx.asp>. 5. <https://cen.acs.org/business/finance/CENs-Global-Top-50-2021/99/i27>.

CAS Analytical Methods is a solution within the CAS SciFinder Discovery Platform, an enterprise solution created to help get discoveries to market faster and optimize profitability. CAS SciFinder Discovery Platform provides researchers with the information they need to avoid surprises and make smart investments with insight into the latest discoveries and competitive intelligence.



CAS is a leader in scientific information solutions, partnering with innovators around the world to accelerate scientific breakthroughs. CAS employs over 1,400 experts who curate, connect, and analyze scientific knowledge to reveal unseen connections. For over 100 years, scientists, patent professionals, and business leaders have relied on CAS solutions and expertise to provide the hindsight, insight, and foresight they need so they can build upon the learnings of the past to discover a better future. CAS is a division of the American Chemical Society.

Connect with us at cas.org

1. https://cdn.sanity.io/files/0vv8moc6/pharmexec/339f103f01e043f652e39f8c0e72f3795fb71f60.pdf/PharmaceuticalExecutive_June2022_watermark.pdf 2. <https://www.shanghairanking.com/rankings/gras/2022/RS0103> 3. <https://www.wipo.int/edocs/pubdocs/en/wipo-pub-943-2021-en-wipo-ip-facts-and-figures-2021.pdf> 4. <https://www.genengnews.com/a-lists/top-25-biotech-companies-of-2022/> 5. <https://cen.acs.org/business/finance/CENs-Global-Top-50-2022/100/i26>

