Fresh

PerkinElmer®
For the Better

HUMAN HEALTH | ENVIRONMENTAL HEALTH

VOLUME 28 • Summer Edition, 2011 | Analytical Sciences and Laboratory services

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WHAT'S Fresh inside...

Articles **Pg. no.**

Dear customers and readers,

In this summer PerkinElmer brings to you interesting things to keep you updated through this volume of Fresh. Continuing our tradition as a technology leader we have always developed our range of products and solutions to support our esteemed customers and users. This year we have gone a step ahead and looked in to the market and regulation needs; to incorporate the beneficial features for the users in our newly launched FTIR Platform and LCMS systems.

In this Fresh you will have new articles and applications for cross section of the industries based on the New Spectrum Two™ FTIR spectrometer and Flexar SQ 300 LC MS detector along with other applications.

PerkinElmer is committed to being a responsible global citizen. We are extremely proud of our heritage as a company whose work results in new and innovative products that help solve global issues affecting human and environmental health. Each year, our employee volunteer activities include participation in community service organizations and activities such as food, clothing and back-to-school drives, tutoring and mentoring in local schools, rebuilding homes etc. This year we helped the people who lost everything in the massive fire at Bandra, Mumbai. PerkinElmer India team helped the affected people in the locality on humanitarian grounds.

Your suggestions and contributions of the scientific work to this Fresh is welcome. Happy reading!

Team Marketing
PerkinElmer (India) Pvt. Ltd.

New Spectrum Two™ FTIR Spectrometer & applications

FOR EVERYBODY, EVERYWHERE AND EVERYDAY

Fast and easy IR analysis

Spectrum Two™ is the IR spectrometer of choice for everybody, everywhere. Ideally suited to everyday analysis, you can confidently perform fast, accurate IR analysis and assure the quality of your materials across a wide range of applications. Breaking new ground in operational simplicity, Spectrum Two™ combines superb performance with a low maintenance design.

Highly transportable with optional wireless connectivity, this IR system is at home both in the field and in the laboratory.

Understanding that not everyone is an IR expert we have incorporated our 65 years of experience, as an IR market leader, into a range of knowledge based solutions that ensure that Spectrum Two™ can be used easily by everybody, no matter what their level of experience.

- For fast, compliant pharmaceutical analysis
- Assure the quality of your polymer material
- Accurately determine and monitor hydrocarbon levels in the environment
- Trouble free analysis of in-service lubricants
- Cost effective fuel analysis using industry standards
- Rapid qualification of nutraceuticals
- A robust and compact instrument for use in academic environments
- Introductory kit enables inexperienced or new IR users to become familiar with IR spectroscopy and sampling

The comprehensive Spectrum 10™ software interface allows you to focus on what matters most - results. Combining a wide range of capabilities this comprehensive FT-IR software platform facilitates data collection, processing and result generation. For users in manufacturing QA environments, Spectrum AssureID™ software provides rapid and unambiguous verification of the quality and identity of production material.

New Spectrum Two™ FTIR Spectrometer & applications

Enhancing effectiveness and efficiency using application packs

Authors: Anil Nimkar, Patrick Courtney

Introduction

Infrared (IR) spectroscopy is an important analytical technique used in various industries as well as research and development activities. The technique has become very well established over the years since the first instrument was introduced commercially in 1944. The basic steps involved in the analysis are, obtaining a good quality IR spectrum of a material, and extracting the information from the IR spectrum which provides knowledge about materials in different forms and processes. However to do this consistently with compliance and minimum resources is required by educational, pharmaceutical, nutraceutical, environmental, polymer professionals. There are various ways and schools of thoughts however we have optimized the real need and prepared a package which is a perfect fit and which provides training as well as the necessary skills.

Before using these application packs for the new or infrequent user,

there is a requirement to become quickly familiarized with and start using the system. To address this need we offer "The Introductory kit for Infrared Spectroscopy" as an ideal self-learning tool.

The Introductory Kit for Infrared Spectroscopy

This Introductory kit rapidly familiarizes the user by illustrating common sampling techniques in infrared spectroscopy using samples provided as part of a kit. These materials are readily available, but present challenges for mid-infrared analysis. For example one of the samples provided in the kit provides the user with an approach on how to obtain a good quality spectrum from a difficult sample. In the process, the user orients himself to different sampling ways and accessories. The samples provide an opportunity to use the relevant software processing parameters to obtain good quality spectrum as well as rapid information using spectrum software.

The various samples in the kit and experiments rapidly and clearly demonstrate:

- What constitutes a good sample spectrum.
- The importance of selecting the correct sampling accessory.
- The use of different sampling accessories such as the slide holder, ATR, and DRIFT
- The importance of managing atmospheric interferences in spectra.
- The effect of increasing the number of accumulations on signal-to-noise ratio.
- The importance of selecting the appropriate resolution for the sample type.
- The basic operation of spectrum software, along with several spectral processing features including Search, Compare and Difference.

An accompanying presentation guides the user through the experiments and in the interpretation of the data. It introduces FT-IR in an attractive way. This guide is a self-learning tool to begin and also to refresh. The Introductory Kit for IR package will certainly satisfy users who are starting practical utilization of mid-IR in all segments and for all skill levels. The use of Introductory Kit for IR Spectroscopy by new users prepares them for effective utilization of further specific application packs such as Educational, Pharmaceutical, Polymer, Environmental etc.

Educational Pack

Infrared (IR) spectroscopy is a widely used analytical technique in academia. The IR spectrum can be used as a fingerprint of a material due to the highly specific pattern of absorption bands for each chemical compound. Furthermore, the intensities of the bands vary with the concentration of the sample and a linear relationship can be established between the sample concentration and the absorbance, permitting quantitative analysis. Recently, increased instrument performance and the availability of advanced software have made the user's life easier in terms of sampling time, instrument operation, spectral processing and interpretation, making it easier than ever to obtain good quality data. However, even with modern attenuated total reflectance (ATR) accessories, sample preparation remains a critical step prior to spectral measurement. If samples are prepared incorrectly, poor-quality measurements may result. The educational pack is a set of resources providing the details of sample preparation methodologies with the help of appropriate experiments. These documents are suitable for use in teaching or training, or incorporation into SOPs. This collection of guides will be updated with new techniques and experiments. This educational pack offers a very robust IR solution with extensive documentation of the experiments. Experiments can either be seamlessly integrating into existing teaching programmes or tailored to a course leader's individual curriculum requirements. The illustrations are applicable to most of the faculties of chemistry, biology, life sciences, polymers, food etc. The 15 experiments are categorised into basic sample preparation, sampling accessories and chemistry. Background theory is covered in the interactive IR-Tutor

tool and experiments use samples from daily life that are fun to learn. The ability of Infrared to handle any form, shape of samples is demonstrated by different accessories. The relevant software with set up, process data and information provides useful knowledge. The step- by-step explanation including troubleshooting can also be adopted as a standard operating procedure in other application packs. The educational pack will allow student to rapidly complete his work, the institute to accommodate more students and secure more funds.

Contents of a typical Chemistry Experiment:

- Aim of the experiment
- Chemical terminologies and Equations
- Equipment and chemicals
- Experimental and accessory set up
- Step by step procedure
- Diagrams and illustrations
- Calculations, results and Graphs with typical values
- Bibilography

Pharmaceutical Pack

The technique of Infrared spectroscopy has long been successfully used in the pharmaceuti cal industry. The most common applications of the technique are the identification of raw materials, the identification of packaging materials and, in some cases, quantification of the Finished Dosage Forms. Regulatory bodies worldwide have accepted the technique. However, there are some differences in the infrared (IR) spectroscopy test methods utilized by these regulatory bodies. Also, different countries have their own regulations for products marketed in their country that manufacturers need to comply with those regulations specific to the country where the products are to be marketed.

The document provides an overview of the various regulatory requirements involved in IR analyses. It provides assistance in meeting regulatory needs with the help of spectrometers and software. The pharmacopoeias referred to in this document are the United States Pharmacopoeia (USP), European Pharmacopoeia (EP), Indian Pharmacopoeia (IP), Japanese Pharmacopoeia (JP), Chinese Pharmacopoeia (CP), and the International Pharmacopoeia (IntPhr). The European Pharmacopoeia is a single reference for the quality control of the medicines in the European countries; hence it is harmonized with the other pharmacopoeias, such as the British Pharmacopoeia (BP), of the European countries.

The Pharmaceutical pack incorporates a regulatory compliant robust IR solution integrated with demands of seven different pharmacopeia's. The information collated into a single document enhances the productivity and the credibility of the results. The document is structured with the parameters required by the pharmacopeia for Infrared performance verification followed by pharmaceutical analysis methods emphasizing identification. The sampling methods and pharmaceutical best practices increase confidence in the results. The document includes a primer for analytical laboratories to provide answers for frequently asked questions regarding 21 CFR Part 11 compliance.

Conclusion

The global utilization of analytical tools such as FT-IR by users in specific industries and communities demands rapid achievement for consistent results by anybody anywhere. These needs are becoming harmonised whether it is education, pharmaceutical, polymers, environmental or recently establishing nutraceuticals. Hence knowledge application packs will provide not only information but also training and skill development for a productive and enjoyable future.

Pharmaceuticals analysis

Multi pharmacopoeia compliance with Spectrum Two™ FTIR Spectrometer

In the month of February 2011 PerkinElmer launched Spectrum Two™, a most reliable FT-IR spectrometer built upon decades of spectroscopy expertise. Part of a new platform of FT-IR spectrometers, Spectrum Two™ is designed specifically to perform rapid analytical measurements and is suited to a wide range of materials and markets.

Small footprint design of Spectrum Two™ is ideal for identification, material qualification or quantification at every level of pharmaceutical. Spectrum Two™ delivers everything required to perform IR analyses within regulated environments with complete confidence. Our in-depth knowledge of the pharmaceutical market has been distilled into a dedicated Pharmacopoeia Compliance Resource Kit compatible with the seven major global pharmacopoeias. As well as removing the need to source detailed pharmacopoeia testing information, it allows you to focus on the implementation of your regulated IR analyses.

State-of-the art accessories, configurable software and our Pharmacopoeia Compliance Resource Kit enables

- Learning and setting up compliant testing protocols faster
- Choice of seven Pharmacopoeia Compliance Resource pack
  – US pharmacopoeia USP
  – European Pharmacopoeia EP
  – British Pharmacopeia BP
  – Indian Pharmacopoeia IP
  – Japanese Pharmacopoeia JP
  – Chinese Pharmacopoeia CP
  – International Pharmacopoeia (Int.Phr.)
- Ensures maximum uptime and productivity.
- Facilitates SOP writing
- Simple understanding of 21 CFR part 11 technical compliance
- Reduces the validation burden

Spectrum Two™ also available with

- Instrument component checks
- Automated instrument performance to comply regulatory IR criteria
- Contamination checks test for sample carry over.
- Data quality assessments monitor for sampling or operator error.
- Result evaluation limits guarantee unequivocal answers.

Measurements in Non-Laboratory Environments
Transportability and compact design enable the user to use Spectrum Two™ in the non laboratory environments and allows movement between measurement points.. The unique "OpticsGuard" technology provides protection to vital optical components

Battery power and Wi-Fi connectivity
The battery-powered option ensures protection against power interruptions and enables measurements in the absence of access to mains power. Wireless connectivity enables operation in environments without the inconvenience of network cabling.

Spectrum Touch™ for routine applications
Dedicated systems utilizing Spectrum Touch™ next-generation user interface have also been developed to meet the needs of application-specific quality control analysis. Incorporating user-friendly touch screen technology, Spectrum Touch allows results to be obtained faster than ever before by even the most inexperienced user, simplifying analysis operations considerably.

Trusted Results
Whether you are in research, product development, or excipients, API or final formulated product testing, compliance is mandatory and quality essential. Spectrum Two™'s patented AVI and AVC technologies use high resolution gas-phase spectra to reduce spectral interferences and inconsistencies, without slowing your day-to-day operations. Additionally, a multitude of automated system checks assure reliable answers, every time.

IR Confidence for Everybody
Spectrum Two™ can be used by everybody, no matter what their level of experience. Now PerkinElmer Spectrum Two™ is ready for Everybody, Everywhere, Everyday.

For further information on PerkinElmer's infrared spectroscopy solutions, please visit www.perkinelmer.com/ftir

HUMAN HEALTH

ENVIRONMENTAL HEALTH

FAST COMPLIANCE WITH IR CONFIDENCE

Spectrum Two™ FTIR with Pharmacopoeia Compliance resource kit

Spectrum Two™ for pharmaceuticals and regulated environments.

With Spectrum Two™ FTIR spectrometer and pharmaceutical compliance resource pack setting up testing protocols is now faster than ever before.

PerkinElmer pharmaceutical compliance resource pack is compatible with seven major global pharmacopoeias - USP,BP, IP,EP,JP,CP and Int.Phr (International Pharmacopoeia).

From rapid raw material identification through to sensitive analysis of formulated products; Spectrum Two™ offers the best user experience without compromising performance.

For more details log on to www.perkinelmer.com/spectrumtwopharma

PerkinElmer (India) Pvt. Ltd.
8th Floor, G Corp Tech Park, Ghodbunder Road,
Kasaravadavali, Thane (W) - 400 607, Maharashtra
Ph: +91-22-3326 1700
Fax: +91-22-3326 1790 & 3326 1791
Email: marketing.india@perkinelmer.com
www.perkinelmer.in

PerkinElmer®
For the Better

Pharmaceuticals analysis

FOR YOUR EYES SAFETY ONLY

Infections of the eye can rapidly damage important functional structures and lead to permanent vision loss or blindness. A cortico-steroid will reduce inflammation, and when combined with an antibiotic, the antibiotic treats or prevents an infection associated with the inflammation.

Antibiotics provide local antibacterial activity in the respective spectrums. Selection of the antibiotic should depend on the known or suspected organisms involved in the potential or present infection.

Polymyxin B Sulfate/Trimethoprim Solution is used for treating eye infections caused by certain bacteria. Polymyxin B Sulfate/Trimethoprim Solution is an antibiotic combination. It works by killing the bacteria. Some medical conditions may interact with Polymyxin B Sulfate/Trimethoprim Solution. if the patient have any medical conditions, especially if any of the following

- If pregnant, planning to become pregnant, or are breast-feeding mother
- If a patient is taking any prescription or nonprescription medicine, herbal preparation, or dietary supplement
- Patients having allergies to medicines, foods, or other substances
- Having the blood disease like porphyria

Some medicines may react with Polymyxin B Sulfate/Trimethoprim Solution. Because little, if any, of Polymyxin B Sulfate/Trimethoprim Solution is absorbed into the blood, the risk of it interacting with another medicine is low.

Polymyxin B is bactericidal for a variety of gram-negative organisms. It increases the permeability of the bacterial cell membrane by interacting with the phospholipid components of the membrane.

expired ophthalmic solution of trimethoprim and polymyxin B sulphates was analyzed for degradants using UHPLC/SQ MS. The ophthalmic solution is used to treat bacterial eye infections and is active against a variety of gram negative and gram positive bacteria. An assay to detect degradants

formed during storage beyond the expiration date of this diluted antibacterial ophthalmic solution is described.

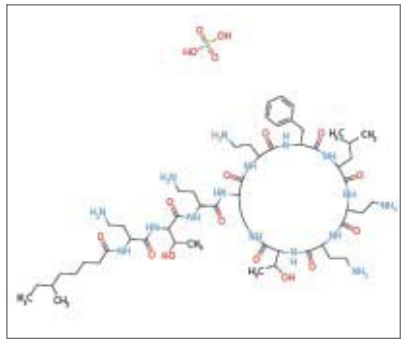
Flexar SQ300 MS detector with ultraspray technology is Used to analyze molecules over a wide mass range and solutions covering a wide spectrum of pH, ESI is a concentration-dependent ionization technique most commonly used with polar molecules that can easily be charged. ESI is typically used with a mobile phase flow rate of 0.2-1.4 ml/min.

The process starts with the LC eluent being pneumatically nebulized to accelerate the evaporation of the mobile phase. The ions are drawn away from the grounded sprayer needle toward the capillary entrance by a strong electric field generated by voltages applied to the capillary entrance, cylinder lens and endplate. Counter-current drying nitrogen gas assists with the evaporation of the solvent, freeing charged molecules from the droplets.

Engineered by the team that pioneered the development of ESI technology, PerkinElmer's Ultraspray sources deliver industry leading desolvation and ionization capabilities. A unique, angled probe projects charged molecules toward the entrance of the mass spectrometer facilitating superior transmission. Fully X, Y, Z-adjustable, the patented probe can be precisely positioned to sample from the edge of the spray plume where the droplets are smaller and require less energy to ionize.

This facilitates super-soft ionization, enabling even the weakest molecular structures to be preserved for analysis.

The results obtained were excellent as Polymyxin B is a cyclic peptide antibiotic which is usually present as a mixture of B1 and B2 sulphates. The structure of polymyxin B1 sulphate is shown in Figure below.



Structure of polymyxin B1 sulphate. Polymyxin B1 has a terminal 6-methyloctanoyl group and polymyxin B2 sulphate has a terminal 6-methylheptanoyl group.

The patented angled design of the Flexar SQ 300 MS probe enhances the desolvation process and provides charged molecules with additional momentum to reach the capillary entrance.

For detail technical parameters and applications log on to www.perkinelmer.in

Fresh

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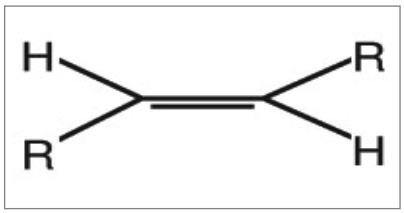
Food & Beverages, Agriculture and Environmental

Trans fats measurement in edible oil by FTIR as per AOAC method

Ben Perston, Joe Baldwin and Rupert Aries, PerkinElmer

Introduction

Trans-fats are mono- or polyunsaturated fats in which one or more of the double bonds is in a trans configuration. Trans fats are present in small concentrations (2–5 % of total fat) in milk and meat products from ruminants such as cattle and sheep [1], but otherwise are found only in processed, partially



hydrogenated fats such as vegetable shortening and margarine. Consumption of trans-fats has been shown to increase the risk of heart disease, and there is increasing pressure on food manufacturers both to reduce trans-fat levels and to label clearly the trans-fat level.

This has led to a need for a rapid, straightforward analytical method to measure the trans-fat levels in fats and oils.

Because of the distinctive molecular structure of trans-fats (Figure 1), the

infrared spectrum contains a band that is not present in the spectra of other types of fats and oils.

Figure 1 A trans double bond. The deformation vibrational mode caused by the H atoms moving out of the plane of the bond is highly characteristic of trans-fats in the infrared spectra of edible fats and oils.

This property is recognized by AOCS method Cd 14e-09 [2], which employs FT-IR spectroscopy to enable a rapid and sensitive measurement of trans-fat in fats and oils down to levels below 1 %.

The method employs ATR sampling at elevated temperature for convenient measurement of samples that may be solid at room temperature. Second derivative processing is used to remove baseline effects and enhance the selectivity of the method.

Experimental

Calibration standards were prepared by mixing trielaidin and tripalmitin in ratios from 0 % to 20 % trans-fat. The IR spectra of the standards and a range of commercial oil and fat samples were measured on PerkinElmer Frontier FT-IR system Spectrum Two™ using a heated UATR sampling accessory with the top-plate temperature-controlled at 65 °C.

The second derivative transformation (Savitzky-Golay with 19 smoothing points) was applied using Spectrum software, enabling simple batch processing of large numbers of spectra.

The results of calibration has shown that excellent correlation co effcient was obtained and the standard error was 0.17%, indicating a detection limit on the order if 0.5%.

The robustness of the method was tested by measuring spectra of a range of commercial vegetable oil samples (all of which should have zero trans-fat) and some animal fats. Beef dripping, as expected, was found to have around 5.5 % trans-fat. The other oils and fats had no clearly visible peak, and the calibration model produced values between zero and 0.5 %. These results indicate that the method may not be suitable for the detection of levels below about 0.5 %.

Conclusions

The method evaluated here appears to be suitable for trans fat concentrations in excess if around 0.5%. Interferences from other components in the trans free oils such as rapeseed and palm oil are more likely to be the limiting factor in the accuracy of method a than the instrument concerns such as SNR.

Trans-fats are a global health concern of increasing importance, and restrictions on their use and enforcement of labelling requirements are likely to increase in the coming years.

Infrared spectroscopy with ATR sampling provides a rapid (<5 minutes) and convenient analysis.

The method is relatively selective, and the work described here indicates that it is suitable for

measurements of trans-fat in edible oils and fats at levels below 1%.

Summary

Trans-fats are a global health concern of increasing importance, and restrictions on their use and enforcement of labelling requirements are likely to increase in the coming years.

Infrared spectroscopy with ATR sampling provides a rapid (<5 minutes) and convenient analysis.

The method is relatively selective, and the work described here indicates that it is suitable for measurements of trans-fat in edible oils and fats at levels below 1 %.

References

1. TRANSforming the food supply, Health Canada 2006. Available at http://www.healthcanada.gc.ca/transfat (accessed February 2011)
2. AOCS Official Method CD 14e-09

Fresh

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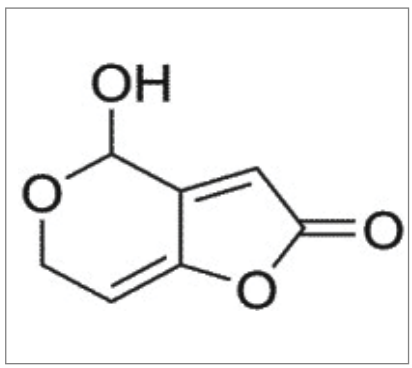
Food & Beverages, Agriculture and Environmental

Analysis of the Mycotoxin Patulin in apple juice by UHPLC- UV

Author: Padmaja Prabhu, Application specialist, Global Application Lab, Mumbai

Introduction

Patulin is a toxic chemical produced from a number of moulds such as Penicillium and Aspergillus. Although apples tend to be the major source, any moldy or rotten fruit could contain this toxin. PATULIN is produced by various molds which primarily infect the mouldy part of apples. Removing the moldy and damaged parts of the fruit may not eliminate all the patulin because some of it may migrate into sound parts of the flesh. Also, patulin can be produced within the fruit, even though it is not visibly moldy. If moldy apples are used to produce apple juice, the patulin goes into the juice. It is not destroyed by heat treatments such as pasteurization process. Patulin is a natural human toxin, and can have



genetic effect within cells, including the developing foetus, the immune system and the nervous system. The recommended advisory level is 50 µg of patulin/kg in apple juice [50 parts per billion (ppb)]1. Hydroxymethylfurfural (HMF), also 5-(Hydroxymethyl)furfural, is an organic compound derived from dehydration of sugars. HMF has been identified in a wide variety of heat-processed foods including milk, fruit juices, spirits, honey, etc.[2]

The concern

'Cancer' alert over apple juice, Nicholas Schoon Environment Correspondent, The Independent News, Wednesday, 9 August 1995.Batanga Today, Pepin Heights Orchard Recalls Apple Cider for Possible Patulin Contamination, Posted by Aeirin Acosta on Jan 4, 2011.The Minnesota Department of Agriculture (MDA) and Pepin Heights Orchard, issued an advisory for apple cider advising consumers to avoid drinking apple cider, which may contain elevated levels of patulin, which is naturally produced by several species of mold. Laboratory tests found the product may be contaminated with a mold toxin called patulin.

This application note demonstrates a rapid method for the identification and quantification of patulin in apple juice using ultra high performance liquid chromatography with UV detection. In addition to method optimization and standard analysis, a number of apple juice samples were analyzed for patulin. The samples were randomly collected from the local market in Mumbai.

Experimental conditions

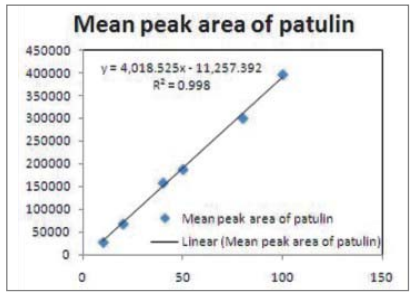
The PerkinElmer Flexar FX-15TM Ultra High performance liquid chromatograph, equipped with a programmable wavelength UV/Vis detector was used for this application. The instrument interaction, data analysis, and reporting was completed with the PerkinElmer ChromeraR data system. A BrownleeTM analytical DB AQ C18 1.9 µm x 100 x 2.1 mm column held at 35 ° C was used for the analysis. The mobile phase was water pH adjusted to 4.0 with acetic acid.

Extraction procedure

The apple juice was extracted with ethyl acetate, and the extracts were dried with 4 gm NaSO4. This extract was evaporated to dryness under a stream of nitrogen. The residue was dissolved in 300 µL of mobile phase A and injected in to the chromatographic system.

Calibration curve

Varying volumes of 5 µg/ml patulin were spiked into 10 mL of juice samples to produce the calibration



curve.

The UV detector was calibrated across the range of 10 to 100 ng/mL; each calibration point was run in duplicate to demonstrate the precision of the system. The average coefficient of determination for a line of linear regression was 0.998 for patulin.

Results and Discussion

Three samples of apple juice and one squash sample were analyzed using the method developed here. The samples were randomly collected from the market and analysed by the above method and the level of patulin determined. All the sample contained less than 5 µg/L of juice. The method was validated at several levels on juice matrix and the recovery values were between 80.52-109.48 %. The flow rate is 0.5 mL/min. HMF elutes very close to patulin, therefore, it was necessary to demonstrate the separation between patulin and HMF. Alternately, a Brownlee validated AQ C18 100 x 2.1 mm x 3.0 µm can be used at a flow rate of 0.7 mL per min to achieve the same resolution between patulin and HMF.

For detailed application note please visit : www.perkinelmer.com

Food & Beverages, Agriculture and Environmental

Fast & easy environmental analysis using Spectrum Touch™

The requirement for accurate determination and monitoring of hydrocarbon levels in our environment spans many industries – from industrial waste-water monitoring to land reclamation and decommissioning of fuel storage facilities. Spectrum Two™ enables rapid and sensitive analysis of hydrocarbons in water and soil, for both laboratory and field-based analyses. Strict regulations demand reliable results and compliance. Whether in the laboratory or on site, Spectrum Two™ makes water and soil analysis simple through its intuitive interface and dedicated Environmental Hydrocarbon FT-IR Analysis Pack. With this out of the box solution, operators possess everything they need to perform analyses to industry standards, no matter their background, experience, or location.

Reliable Results, Everywhere

Hydrocarbon analysis requires a low margin of error. In analysis of trace elements in water or soil samples, generating results that comply with strict legislative rules is important. Repeatability of results and reliability

in the field can be guaranteed with Spectrum Two™. Environmental analysis requires an instrument that's portable, tough and ready for action. Battery power options and compact size simplifies transportation to non-laboratory environments for easy analysis where mains power is not available.

Dynascan™ Interferometer design provides exceptional spectral quality, while its non-critical bearing delivers unmatched longevity and reliability. Protection from the elements is ensured with OpticsGuard™, a unique humidity shield, which provides maximum instrument uptime and reduces maintenance costs.

Simplified Analysis

With Spectrum Two™, samples can be run in a central laboratory or in remote locations with no compromise in performance. The FT-IR applications pack provides users with all they need to know to generate results that meet the same quality standards expected from a full-service laboratory. Spectrum Two™ supports ASTM standard D7066 for analysis with halogenated extraction solvents, and features an alternative cyclohexane method for hydrocarbon solvent transmission analysis. An additional HATR method provides maximum extraction solvent flexibility.

Environmental industry-specific Touch App™ software provides an intuitive touch screen interface and guides users through each step in analysis. The application software kit supplies all the information needed, taking ease-of-use to a new level and enabling non-skilled users to run sophisticated IR analysis at the touch of a button. SOPs and step-by-step instructions for water and soil sampling minimize operator error. An optional ATR based method allows operators to use any volatile solvent and obtain the full spectrum of the sample, while supplied macros can be updated or edited by the user to suit the requirements of their site. Plus, unlike dedicated analysers, Spectrum Two™ also has the performance capability and sampling flexibility of a FT-IR and can be expanded to perform many other test methods. For more information, visit www.perkinelmer.com/spectrumtwo environmental

ADVANTAGE
SPECTRUM TOUCH™

Touch screen monitors that allow for the user to manipulate the system and applications through touching the monitor itself. These types of monitors have several advantages.

Space saving and mobility
Touch screen monitors thus can be used with greater ease in smaller space. User can transport the system more easily because less is connected to the system as a whole.

Durability
Touch screens are more protected from dust water than the conventional keyboard and mouse. Hence has a potential of longer life than the conventional monitor systems.

Language
The fact that icons used with touch screens increases the speed of operation It takes less time for the brain to process an image than it does to read sentence of text. No language barrier for icons

Comfort
Touch screens are more comfortable for the user. For instance, for those with arthritis They also can be more accessible for those with poor eyesight because icons sometimes can be easier to distinguish than text. Easy to be operated with less training time.

EVENTS UPDATE

International Conference on Forensic Nanotechnology – Ahmedabad

PerkinElmer participated in International Conference on Forensic Nanotechnology held on 25th and 26th March at Ahmedabad.
Dr. Gokula Srinivasan gave a talk on "Infrared Spectroscopic Imaging on Forensic Science Applications". The event was also having display booths where new Spectrum Two™ was displayed. The battery operation and Wi-fi connectivity were the buzz words among the forensic scientists.

Asia Pharma Expo-2011

This was one of the biggest exhibitions in this part of the world (24th to 26th Feb 2011) where more than 300 pharmaceutical companies from various parts of the world participated. In spite of ICC2011 cricket world cup co-hosted by Bangladesh there was tremendous enthusiasm and interest among the participants and visitors. PerkinElmer participated along with the local dealer M/s OMC Pvt. Ltd. The major attraction was new Spectrum Two™ FTIR and AAnalyst 200. On the spot special offer for limited period was very much attracted the customers to the booth.

Corporate Social Responsibilities

Perkinelmer (India) team followed Corporate Social Responsibilities

In the middle of the night on 4th March, 2011 the devastating fire broke out and gutted the slums of Garib Nagar a slum community in Bandra suburb in Mumbai populated with people below poverty line. Nearly 2000 homes went up in flames, nine people were injured and thousands rendered homeless in the incident. The small shanty shelters melted into ashes in minutes, which destroyed all their belonging, and left them at the mercy of relief.

General appeals that went out to receive help, was for clothes, food grains, blankets, utensils and other household articles for fire affected people. PerkinElmer Mumbai office team was mobilized to respond to this disaster and reach out to the people of Garib Nagar with relief material as a corporate social responsibility.

Mumbai HR team conducted initial need assessment and with community representative and few local residents, who volunteered for ParkinElmer's relief distribution. The appeal was raised to donate clothes, food grains, blankets, utensils etc through emails and notice board display. Response to this appeal was encouraging and could benefit 235 affected residents.

A team of 10 personnels (from HR and other Functions) visited the site of Garib Nagar directly rather than through NGO to distribute the relief through local volunteers. People of Garib Nagar have expressed their heartfelt gratitude to all PKI employees for being so generous and for the empathy shown towards them.

All function leaders and ParkinElmer team members truly demonstrated commendable teamwork and actively participated in successful execution of first CSR initiative of PerkinElmer India.

Dear customers & business partners,

We are glad to announce that with your support and encouragement, continuing on the path of growth and expansion we are relocating to a brand new facility in Thane where we are will have our corporate head office, application centre and customer training all under one roof.

Kindly note our new address for all future correspondence
Our new office address w.e.f. **18th April 2011** is –

PerkinElmer (India) Pvt. Ltd.
8th Floor, G Corp Tech Park, Ghodbunder Road,
Kasaravadavali, Thane (W) - 400 607, Maharashtra
Ph: +91-22-3326 1700
Fax: +91-22-3326 1790 & 3326 1791
Email: marketing.india@perkinelmer.com

PerkinElmer®