Thermo Fisher
SCIENTIFIC

Australasian Forensic Toxicology Meeting

October 11-14, 2009

RACV Club, 501 Bourke St, Melbourne, Australia

Tuesday 13th October

Registration, Coffee and Tea

09⁰⁰   Key Note Lecture 3:

Dr Sooyeun Lee (KOREA)
"Quality Assurance in Hair Drug Analysis – Measurement Uncertainty and Reference Materials"

09⁴⁵   Key Note Lecture 4:

Maritta Parsell (NATA)
"Accreditation of laboratories: current issues"

10³⁰-11⁰⁰ Sponsored Morning Coffee and Tea

10³⁰ Key Note Lecture 5:

Professor Olaf H. Drummer (VIFM)
"Best practice in Forensic Toxicology"

Tuesday Oral Session 3 - (Alternative matrices)

11³⁰ Confession of a murder – Acquittal by a hair's breadth
T. Kraemer, K.Y. Rust, C. Schyma, M. Hopf, S. Warth, D. Bregel, J. Wilske

11⁴⁵ Hair analysis for the most common drugs of abuse in young children
Voula Staikos, Jochen Beyer, Dimitri Gerostamoulos, Olaf H. Drummer

12⁰⁰ Stability of Δ9-THC in extracted oral fluid using HPLC/MS/MS
Mark Chu, Jochen Beyer, Dimitri Gerostamoulos, Olaf H. Drummer

12¹⁵ Development of HPTLC-Spectrophotodensitometric for drug profiling
Gelgel Wirasuta, Pitri Susanti, D.A.Swastini, INK Widjaja

12³⁰-14⁰⁰ Sponsored Lunch and Poster Session

Developement of HPTLC-Spectrophotodensitometric for drug profiling

I M.A.Gelgel Wirasuta[1,2], Pitri Susanti[1], D.A.Swastini[1], INK Widjaja[1]
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High performance thin layer chromatography (HPTLC)-Spectrophotodensitometry was developed in the analysis and characterization (drugs profiling) of chemical contents of drugs. In this study, the reproducibility of peak pattern chromatograms influenced by times of HPTLC developing, mobile phase, and direction of developing HPTLC was investigated. The reproducibility of peak pattern chromatogram was presented as distribution of C-cosine coefficient function. The aim of this study was to investigate the analytical method for drug profiling based on HPTLC-Spectrophotodensitometry.

Variation of hRf values due to elution time differences resulted in wide range of C values. This range of C values can be reduced by using the hRfc values in the calculation. The separating power of HPTLC affected the c value distribution. Therefore, for the purpose of drug profiling, HPTLC spectrophotometry data base is suggested to use hRfc values in the calculation.

Australasian Forensic Toxicology Meeting

This is to certify that

Gelgel Wirasuta

Attended and presented at the
AUSTRALASIAN FORENSIC TOXICOLOGY MEETING
Held in
MELBOURNE, AUSTRALIA,
OCTOBER 12-14, 2009

Organised by
THE VICTORIAN INSTITUTE OF FORENSIC MEDICINE

Professor Olaf H. Drummer
Chairman of Organising Committee &
Current TIAFT President

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Developement of HPTLC-Spectrophotodensitometric for drug profiling

by Gelgel Wirasuta

Developement of HPTLC-Spectrophotodensitometric for drug profiling

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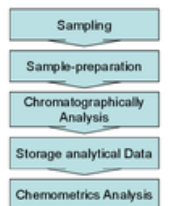
Developed HPTLC-finger print

by Gelgel Wirasuta

Developement of HPTLC-Spectrophotodensitometric for drug profiling

Dr.rer.nat. I Made Agus Gelgel Wirasuta [1,2]
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Problems use TLC in Drugs Profiling Analysis

Sampling

Sample-preparation

Chromatographically Analysis

Storage analytical Data

Chemometrics Analysis

1. Distance analysis
2. Similarity analysis
3. Reconstruction of distribution network

- Variation of hRf-value
  - Difficulties to make a chemical print-finger in same manner for chromatographically in difference time analysis
  - Due to un-appropriate chemometric analysis results

Introduction

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- Drug abuse is a serious international problem and is on the increase
- The seizure of illicit drugs:
  - Qualitative and quantitative analysis to find their chemical signature
  - Based on chemical print finger through chemometric analysis could be build their distribution network.
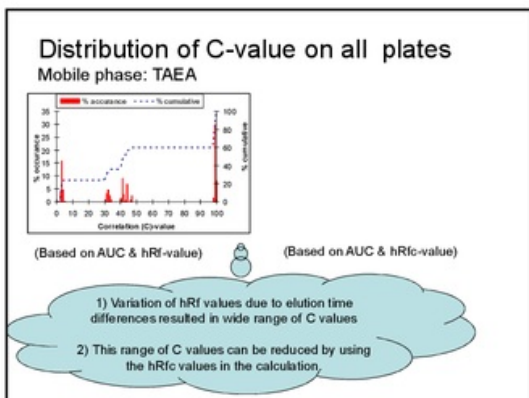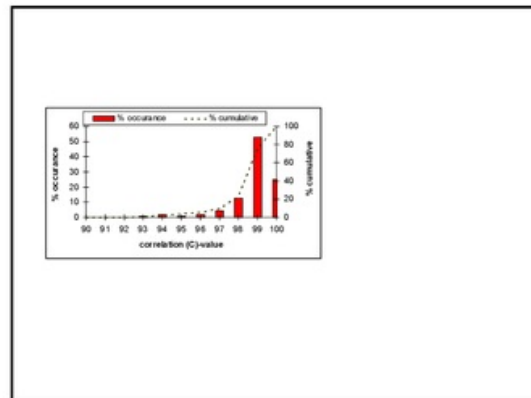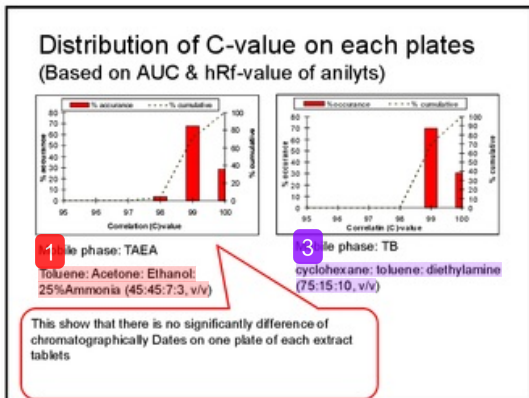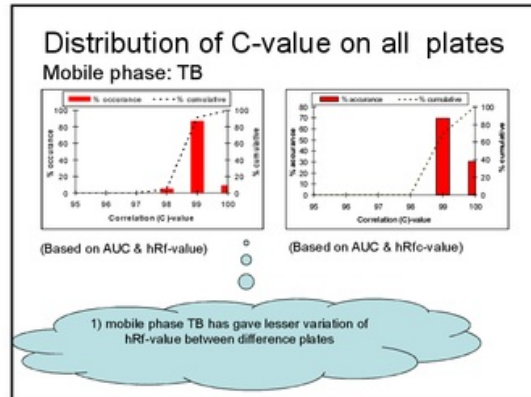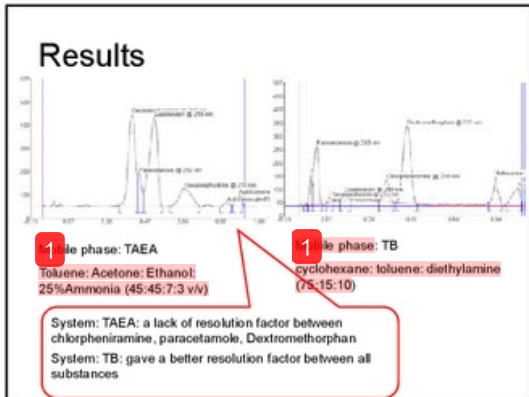

Aim of the Study

- to study affecting factors on variation of hRf-value
- to the usage the hRfc-value (correcting hRf) for distance analysis of pairs chromatographically dates
  - In this study we were used correlation coefficient using a square cosine function

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Introduction

- HPTLC-Densitometer is a modern analytical tool can provide:
  - Good separating power
  - UAC peaks of chromatogram
  - UV-Vis spectrum of each peaks
- Advantage HPTLC vs GC
  - Robust
  - Bach samples analysis
  - Economist
  - Need not so adequate background-knowledge

Material and Method

- Materials
  - HPTLC-plates
  - Pharmaceuticals Tablet
  - Other chemical
- Method
  - Tablets were extracted, spotted on HPTLC-plates (10x10 cm), eluting by tow mobile phase, scanned at 210 nm under TLC-Scanner 3 (Camag)
  - Correlation coefficient between chromatographically dates were calculated by using a square cosine function (C-values)

Results

Mobile phase: TAEA
Toluene: Acetone: Ethanol: 25%Ammonia (45:45:7:3 v/v)

Mobile phase: TB
cyclohexane: toluene: diethylamine (75:15:10)

System: TAEA: a lack of resolution factor between chlorpheniramine, paracetamoke, Dextromethorphan
System: TB: gave a better resolution factor between all substances

Distribution of C-value on all plates
Mobile phase: TB

(Based on AUC & hRf-value)

(Based on AUC & hRfc-value)

1) mobile phase TB has gave lesser variation of hRf-value between difference plates

Distribution of C-value on each plates
(Based on AUC & hRf-value of anilyts)

Mobile phase: TAEA
Toluene: Acetone: Ethanol: 25%Ammonia (45:45:7:3, v/v)

Mobile phase: TB
cyclohexane: toluene: diethylamine (75:15:10, v/v)

This show that there is no significantly difference of chromatographically Dates on one plate of each extract tablets

Distribution of C-value on all plates
Mobile phase: TAEA

(Based on AUC & hRf-value)

(Based on AUC & hRfc-value)

1) Variation of hRf values due to elution time differences resulted in wide range of C values

2) This range of C values can be reduced by using the hRfc values in the calculation.

Developed HPTLC-finger print