



HIGH PERFORMANCE THIN-LAYER CHROMATOGRAPHY A COMPREHENSIVE TOOL FOR ANALYTICAL DETERMINATIONS

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CHROMATOGRAPHY A
COMPREHENSIVE TOOL FOR
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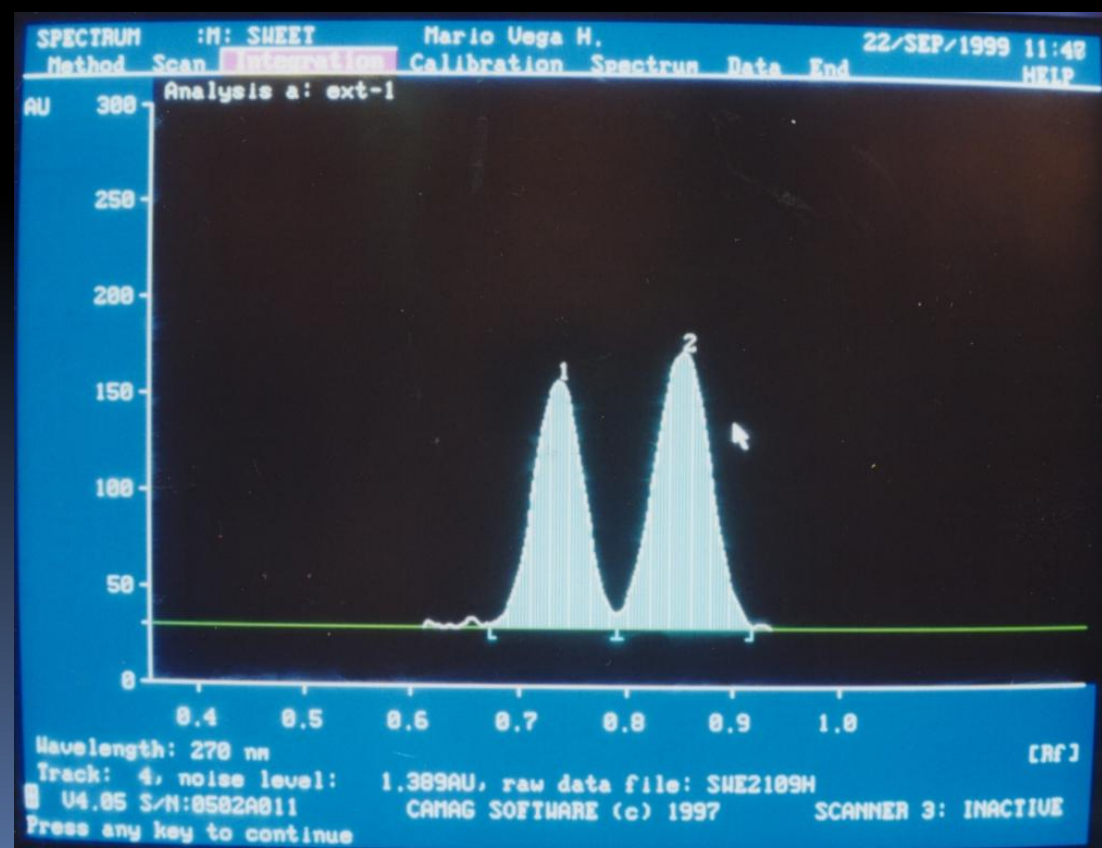


The Faculty of Pharmacy



Department of Food Science

HPTLC since the 80's



HPTLC LABORATORY AT UNIVERSITY OF CONCEPCION



Fastenenes

High troughput

HPTLC

Plate is use
just once

Off line

Multidimensional

WHERE HPTLC IS THE CHOICE TOOL

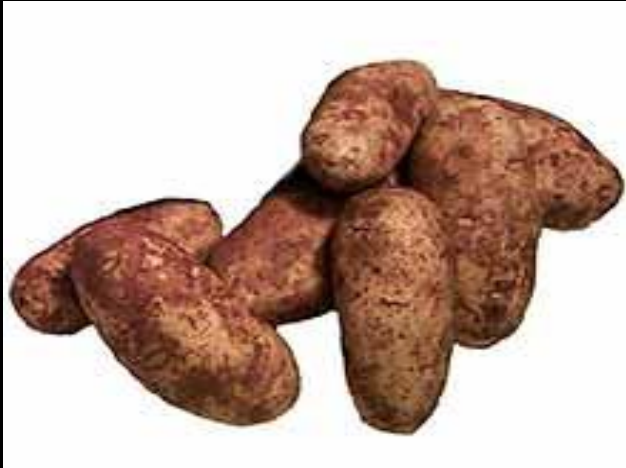
1. Food analysis, quality control and chemical composition
2. Analysis requiring fast response
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Analysis of Ascorbic Acid in different fruits and vegetables in studies of functional foods

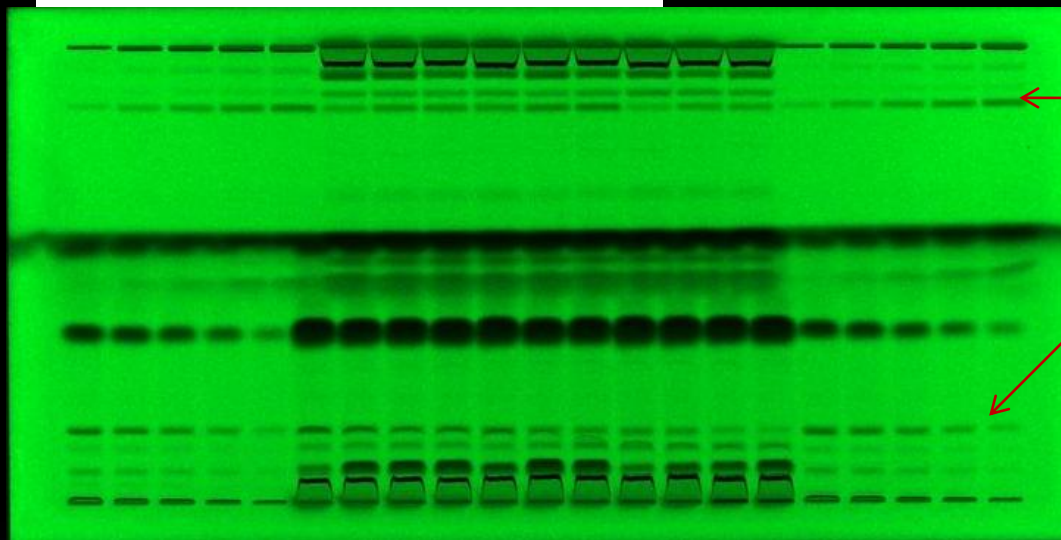


Ascorbic acid content in different varieties of potatoes consumed in Chile

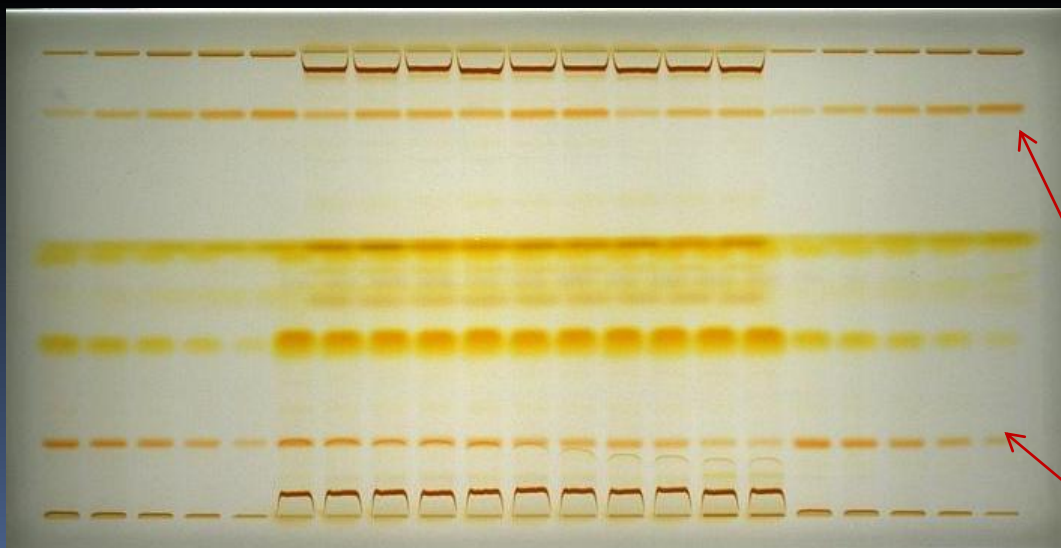


Vitamin C was measured as the ozazone

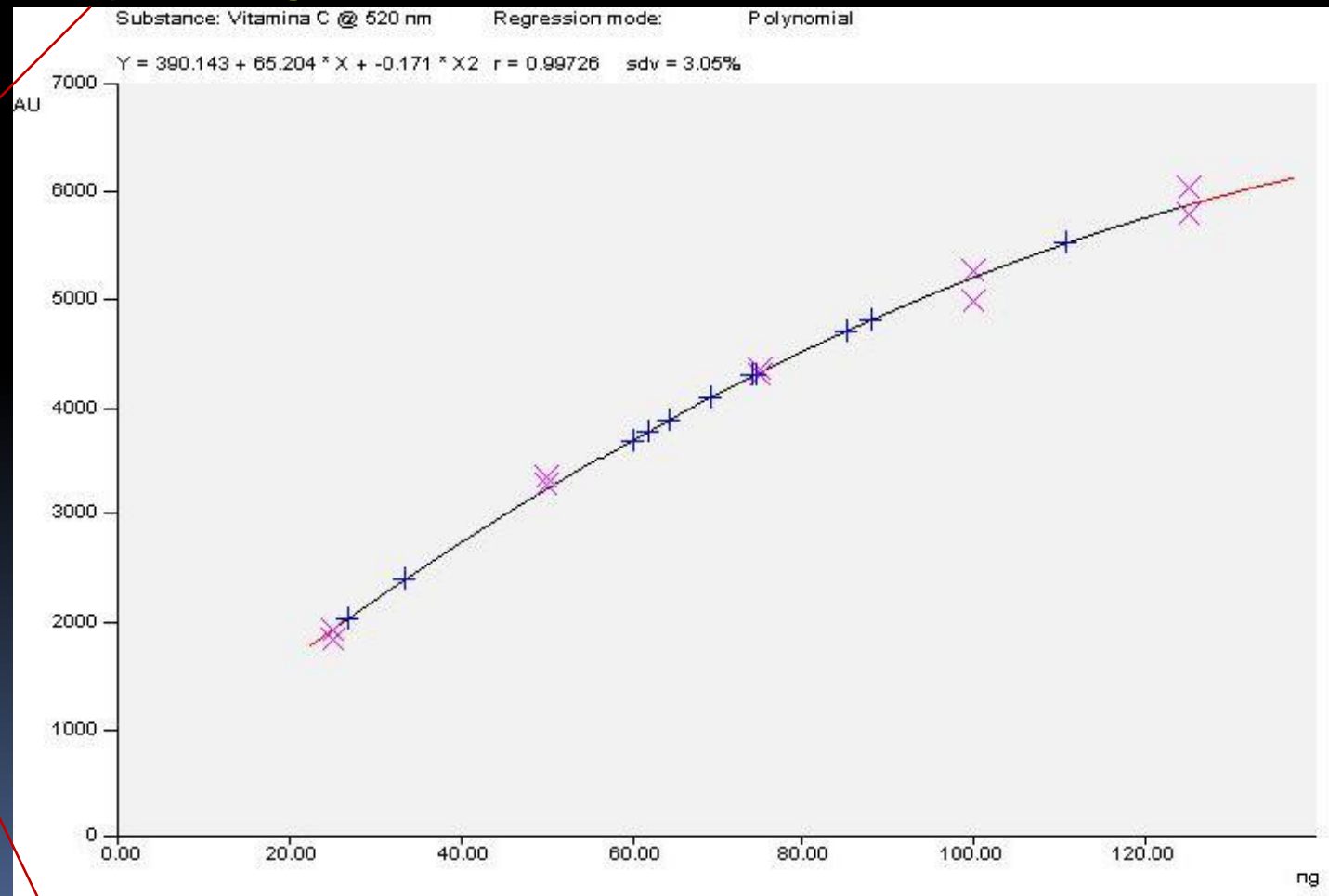
Range of Vitamin C in Chilean potatoes: 9-15 mg%



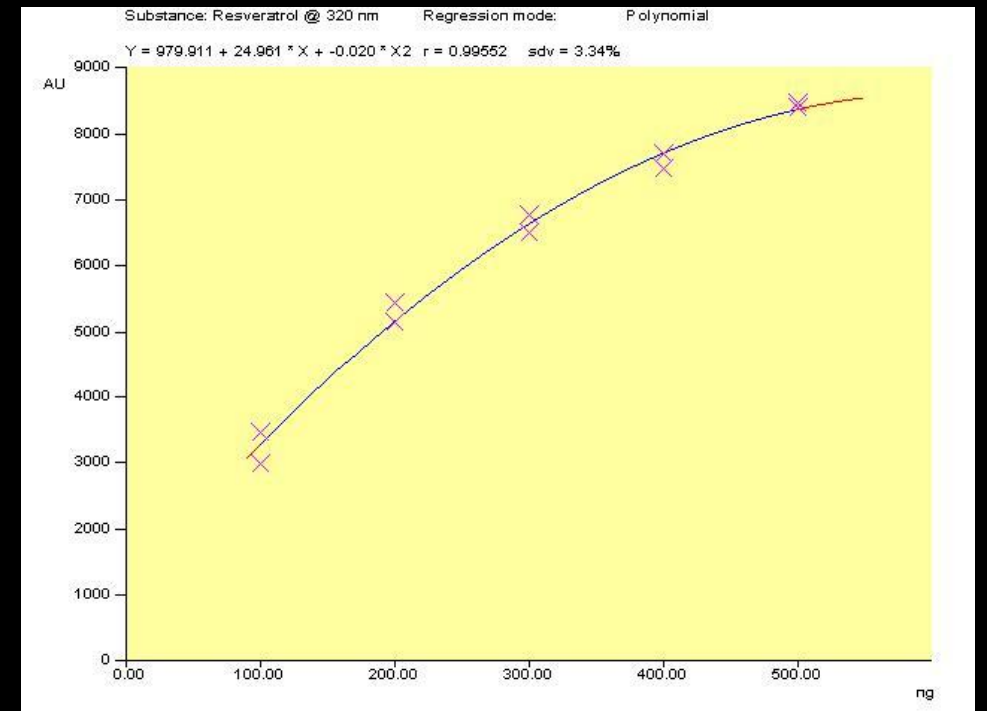
Vitamin C



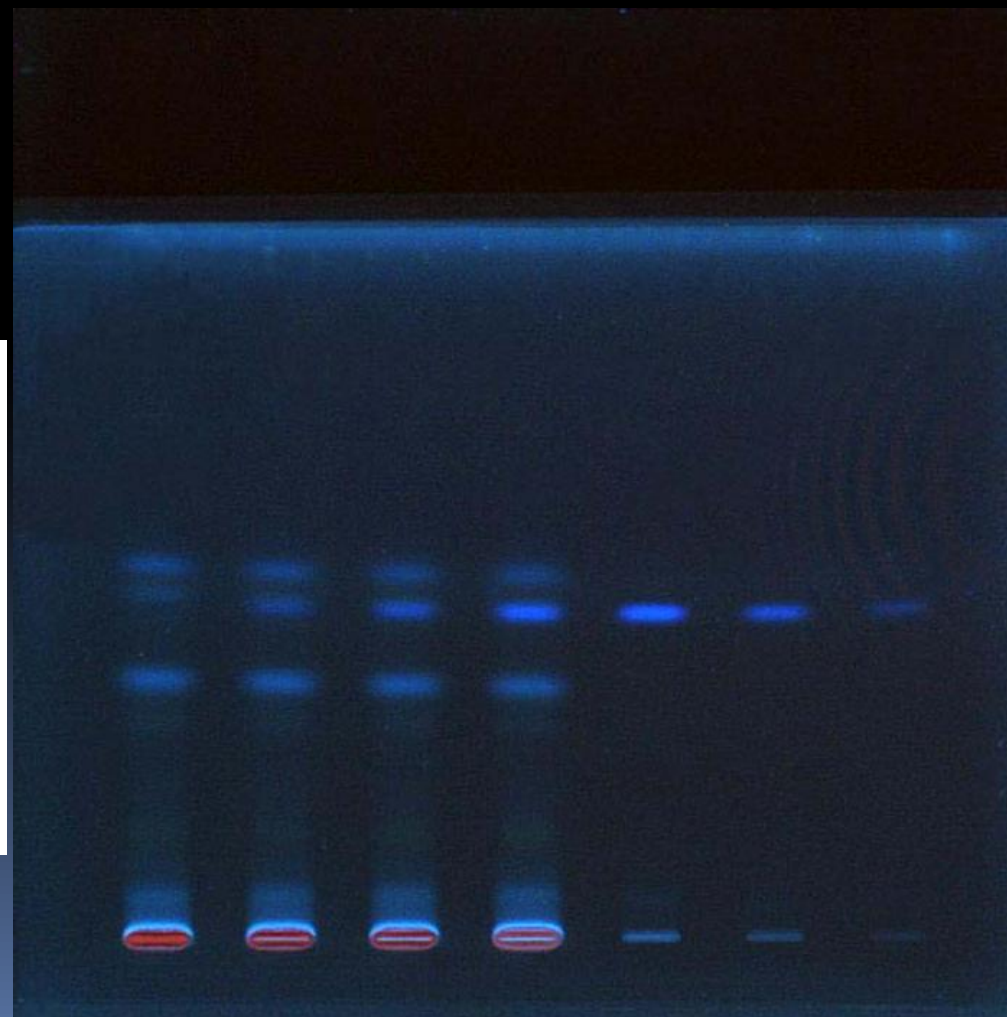
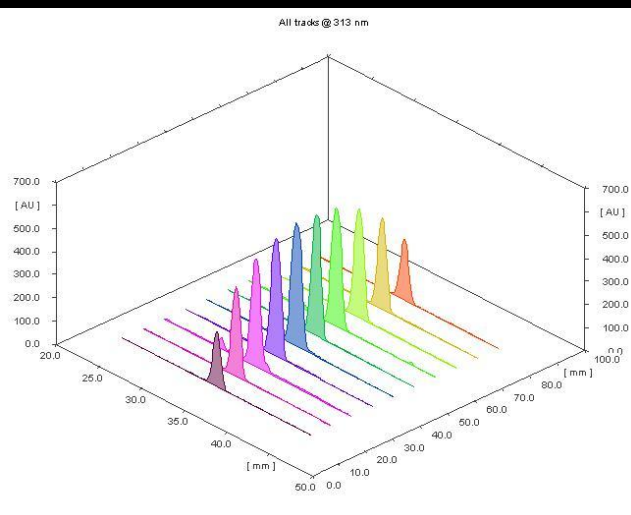
Vitamin C



Resveratrol in Chilean wines



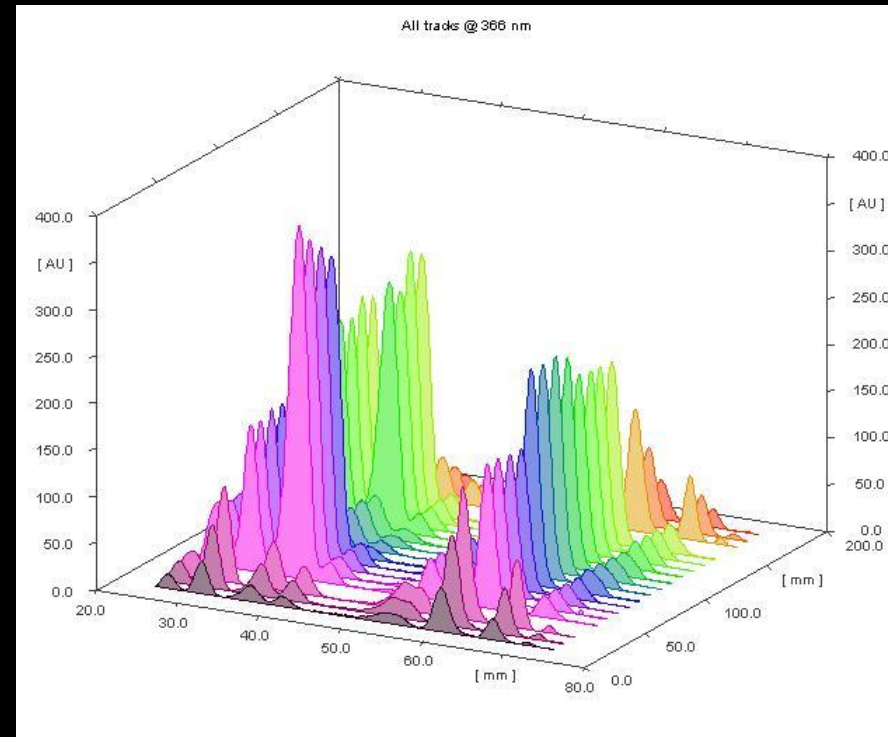
Range of resvaretrol in principal varieties of Chilean wines: ND-2.5mg/L
Merlot showed the highest concentration compared with Syrah, Carbenet sauvignon and Carmenere



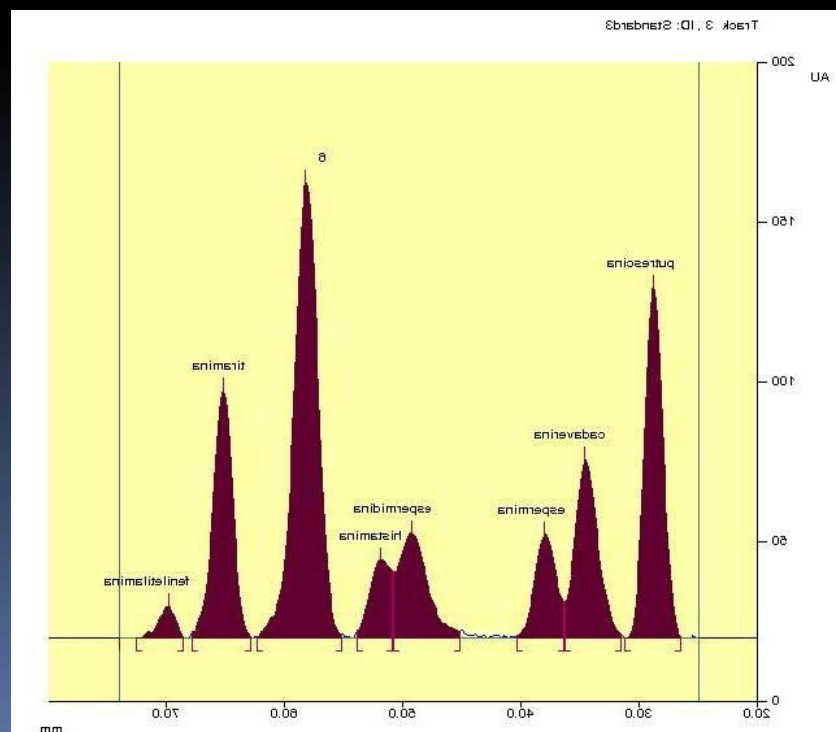
Resveratrol



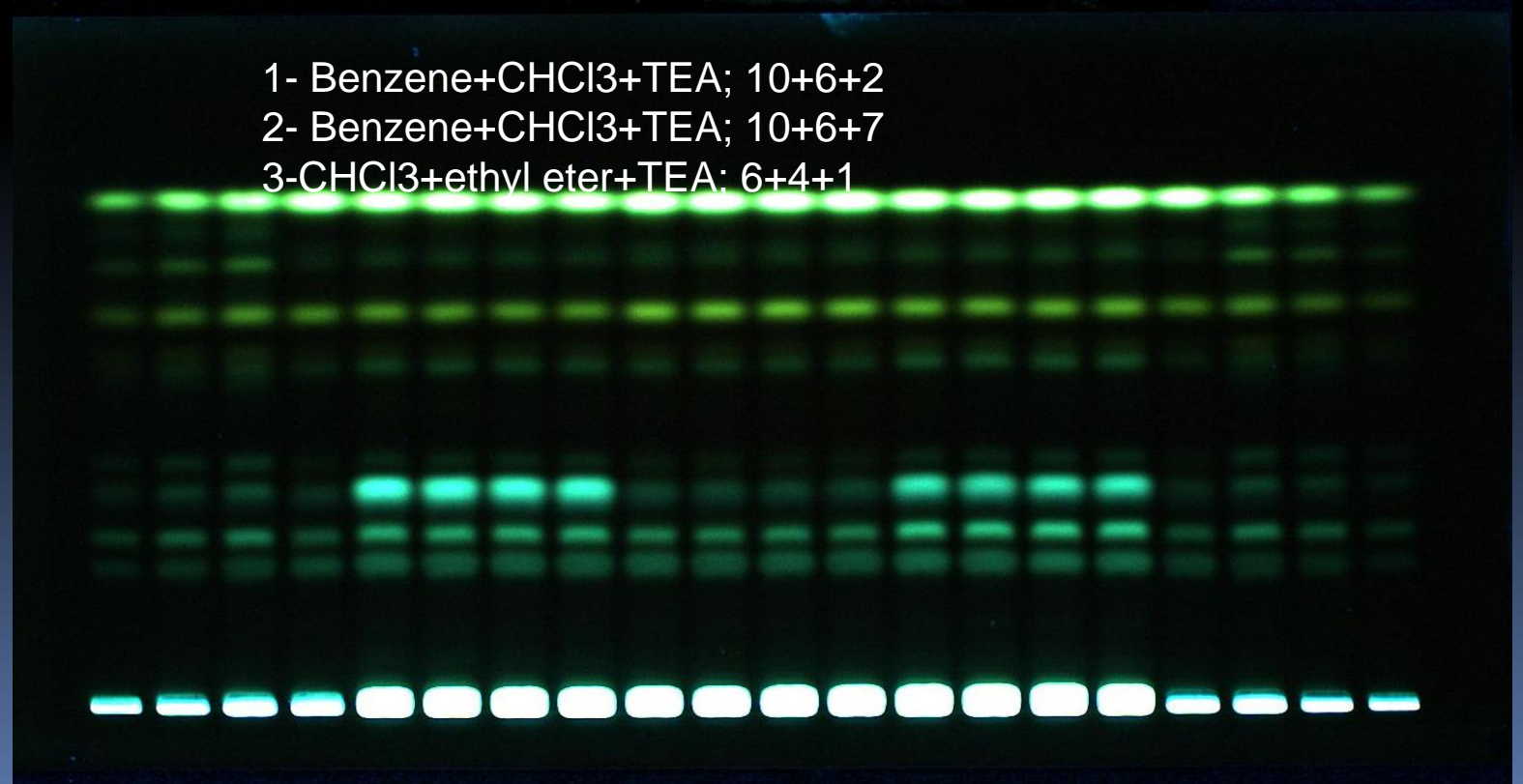
Biogenic amines in Chilean wines



Range of biogenic amines : 4 – 65 mg/L
Up to three times higher than European wines



- 1- Benzene+CHCl₃+TEA; 10+6+2
- 2- Benzene+CHCl₃+TEA; 10+6+7
- 3-CHCl₃+ethyl eter+TEA; 6+4+1



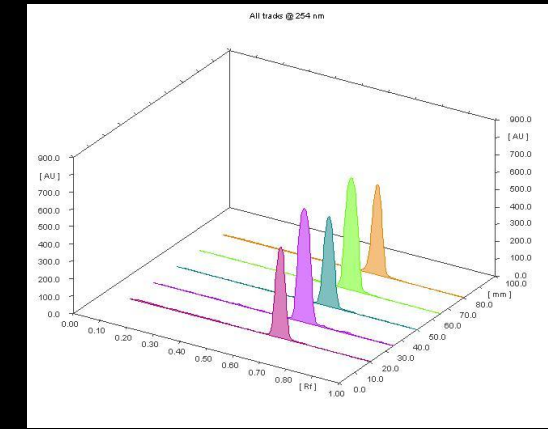
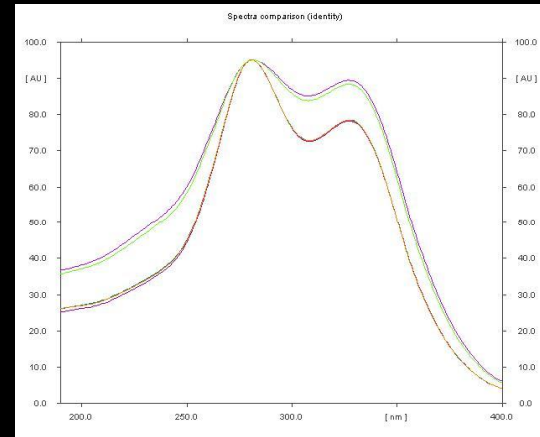
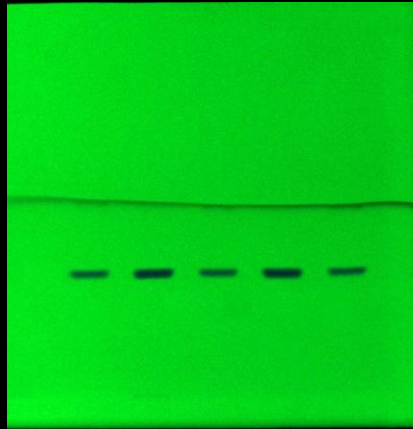
WHERE HPTLC IS THE CHOICE TOOL

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Confirmation of identity of veterinary drugs by TLC

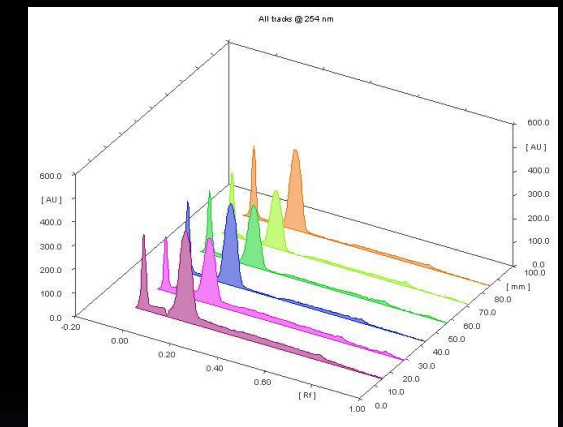
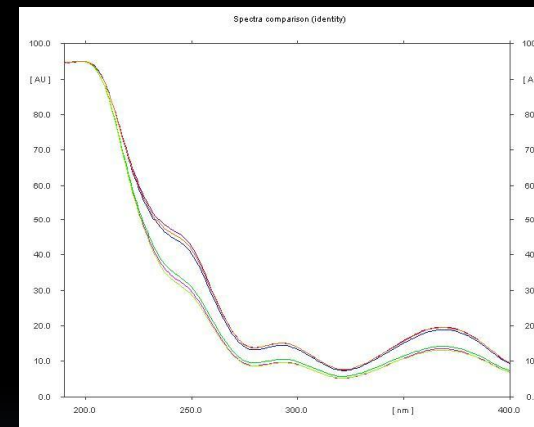
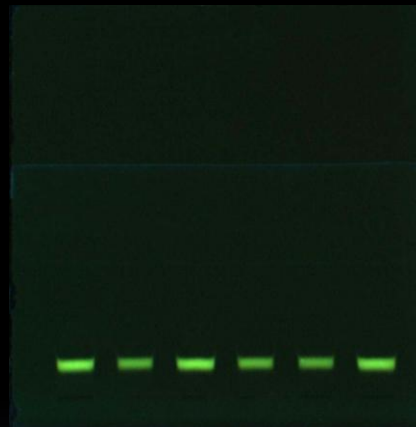
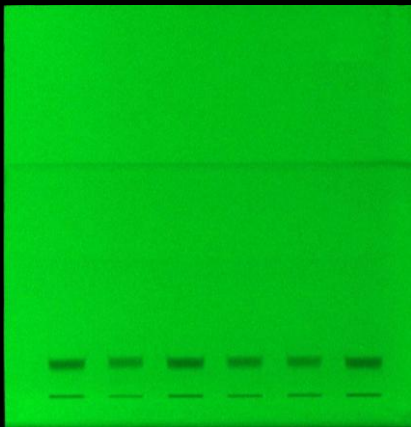
Mobile phase: Propanol +NH₄OH; 7+3, v/v/v

Enrofloxacin



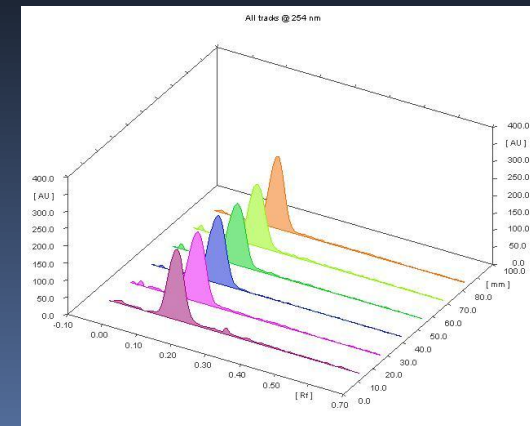
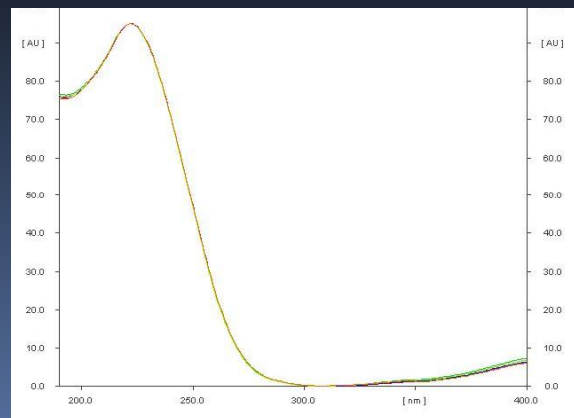
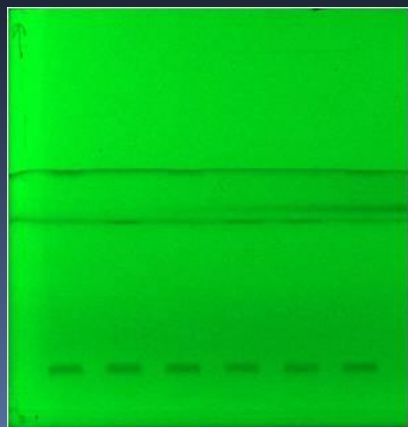
Mobile phase: Toluene +Ethyl acetate+acetic acid; 25+25+1, v/v/v

Pyrantel emboate



Mobile phase: Toluene +Ethyl acetate+Formic acid; 6+3+1, v/v/v

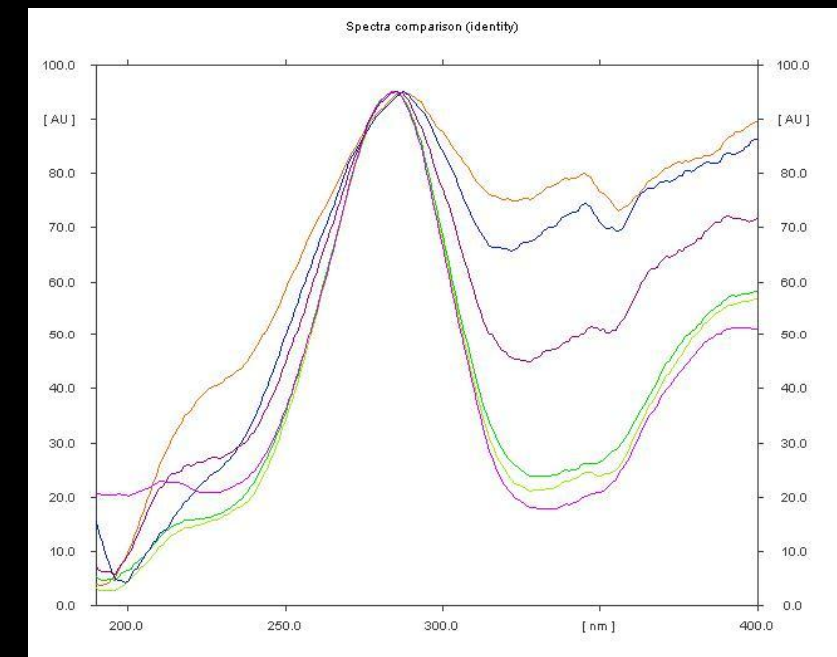
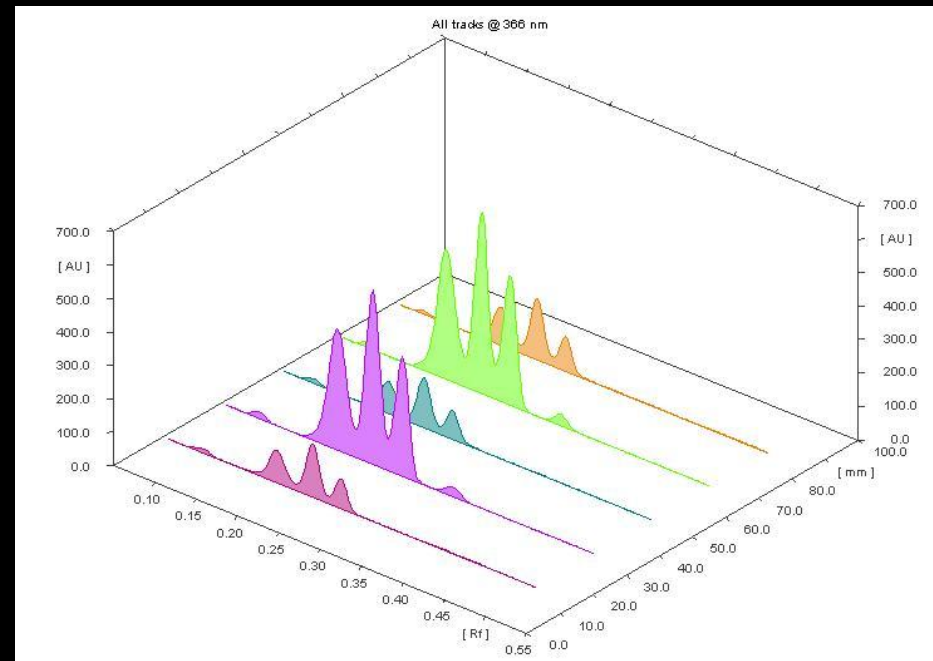
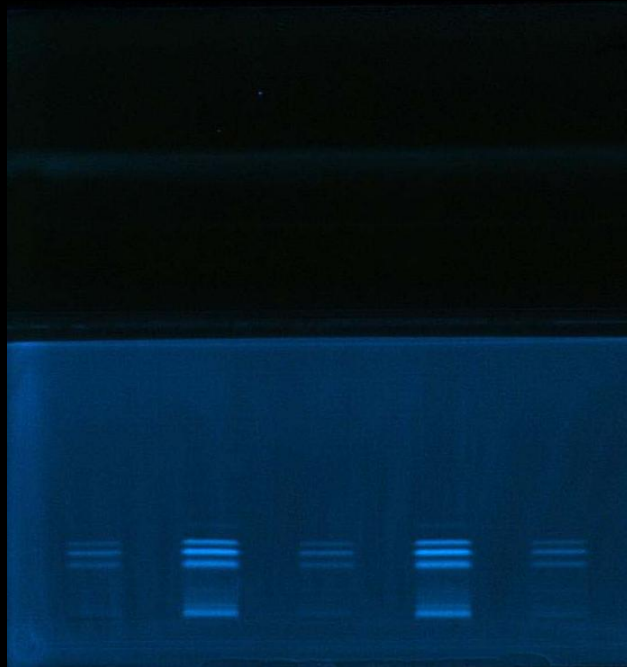
Levamisol



Confirmation of identity of veterinary drugs by TLC

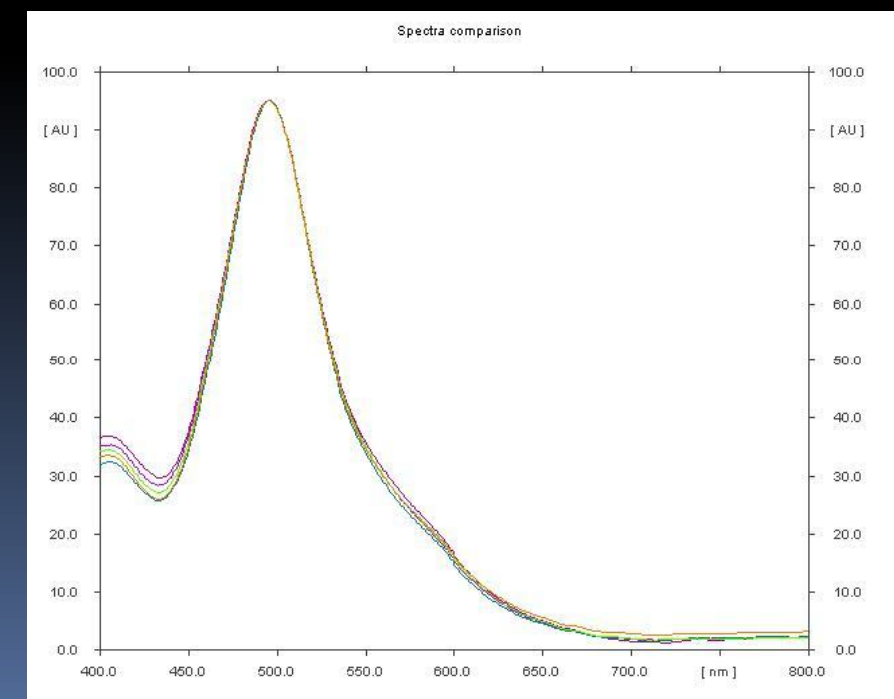
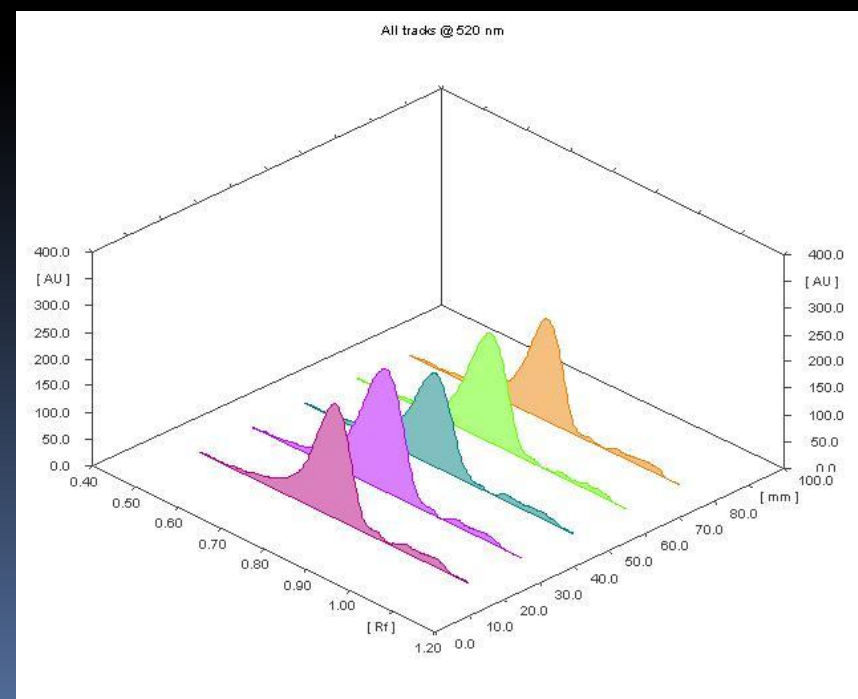
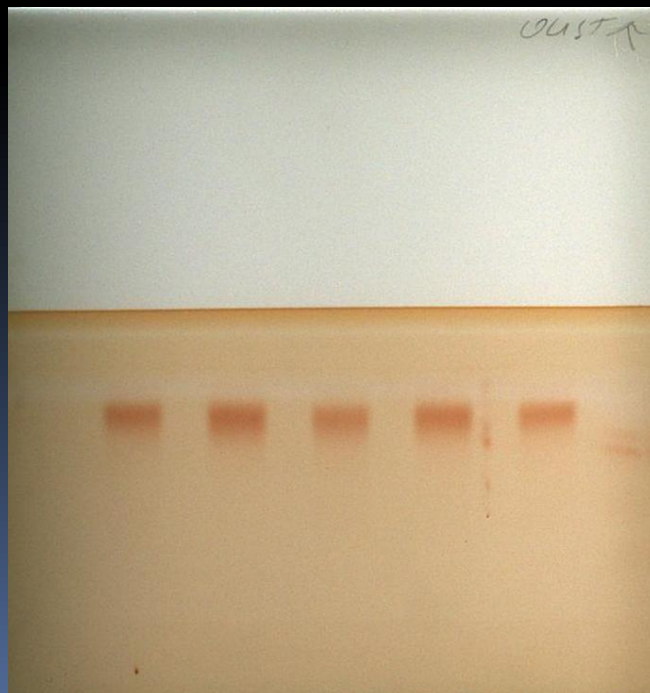
Gentamicin

Mobile phase; CHCl₃+Ethanol+ NH₄OH; 20+20+10, v/v/v, lower layer



Colistin

Mobile phase; Methanol+n-butanol+ NH₄OH+CHCl₃;14+4+9+12, v/v/v/v.



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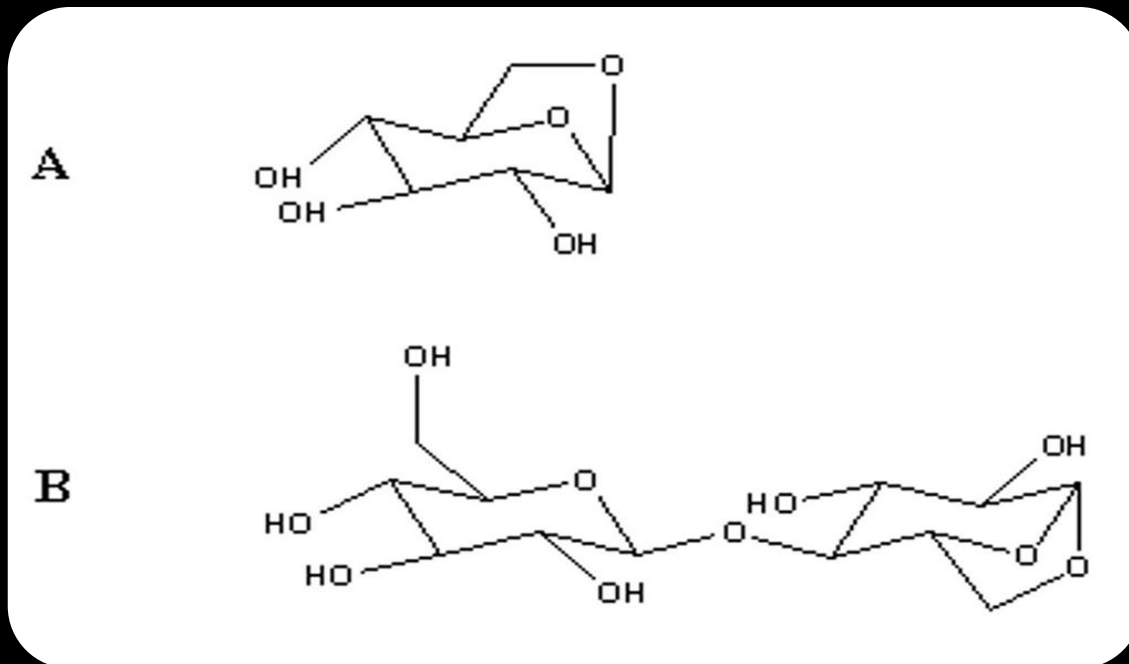
Bio-oil a complex matrix





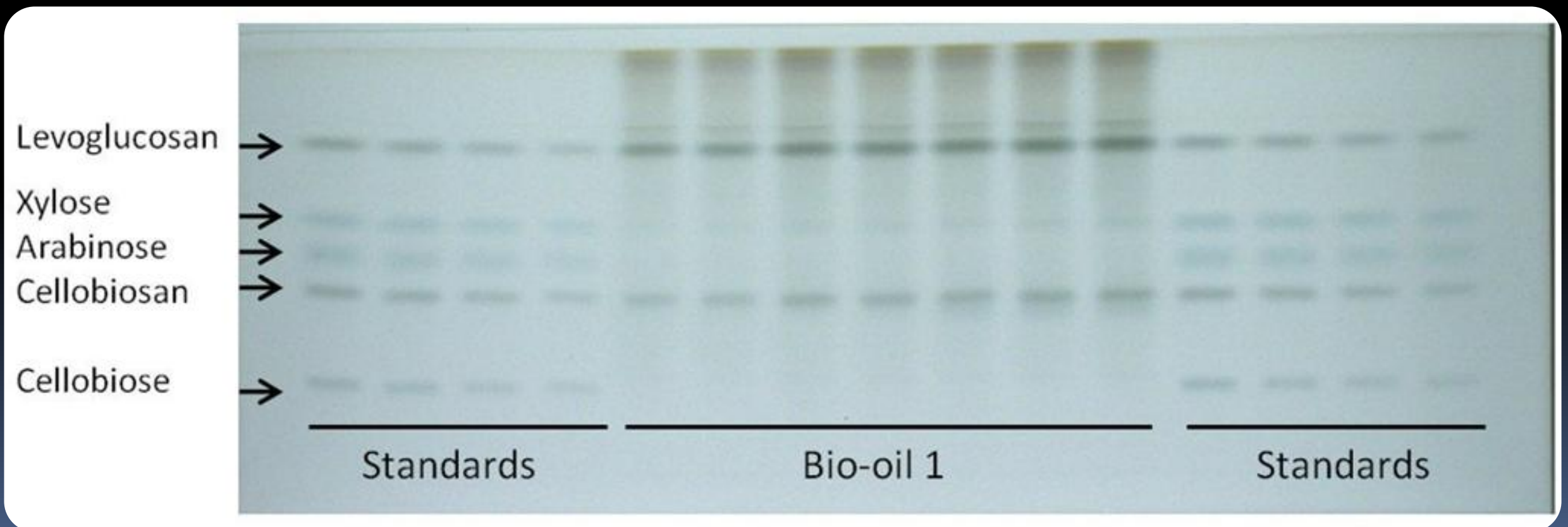
Different fractions of bio-oil



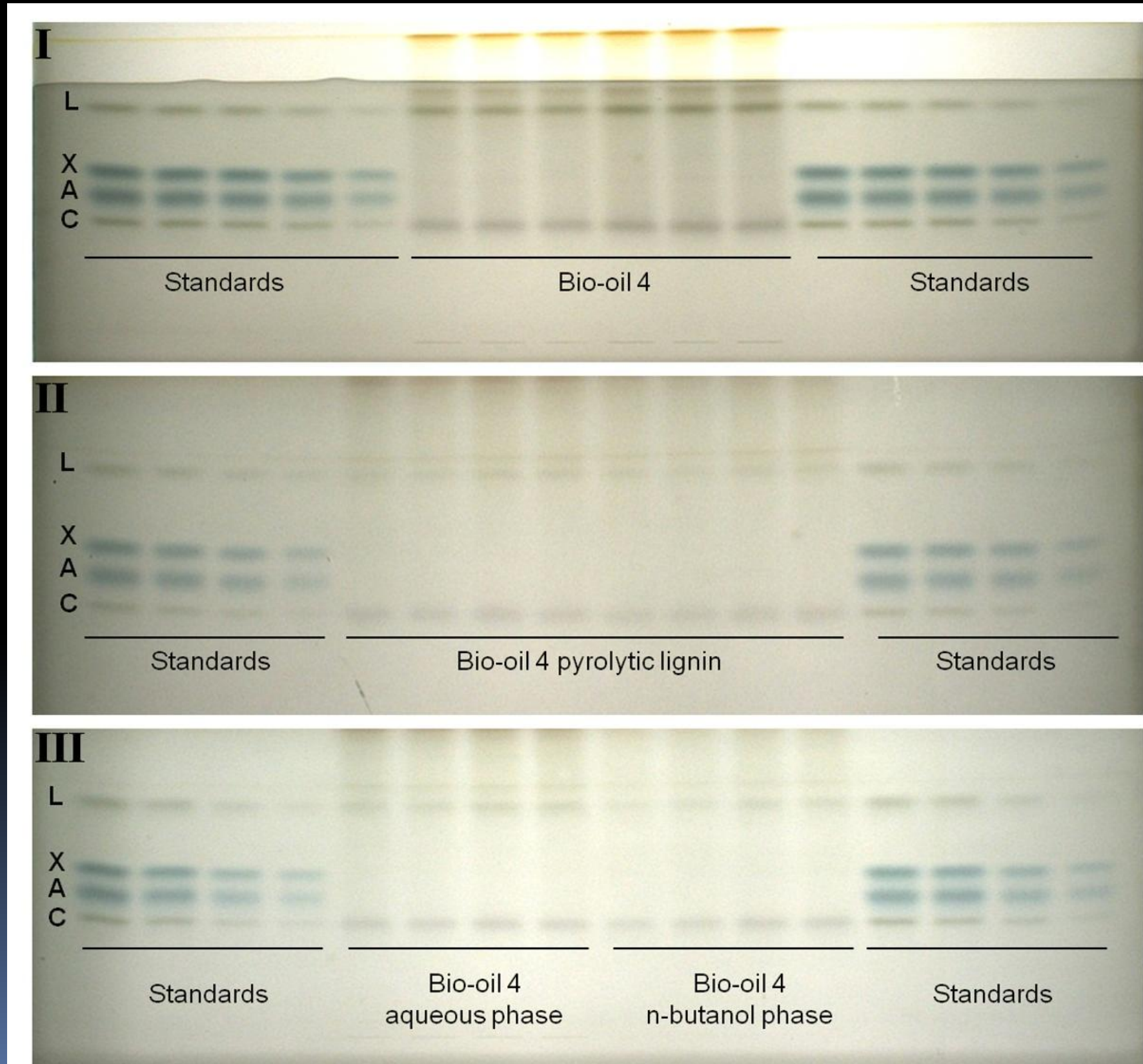


Levoglucosan

Cellobiosan

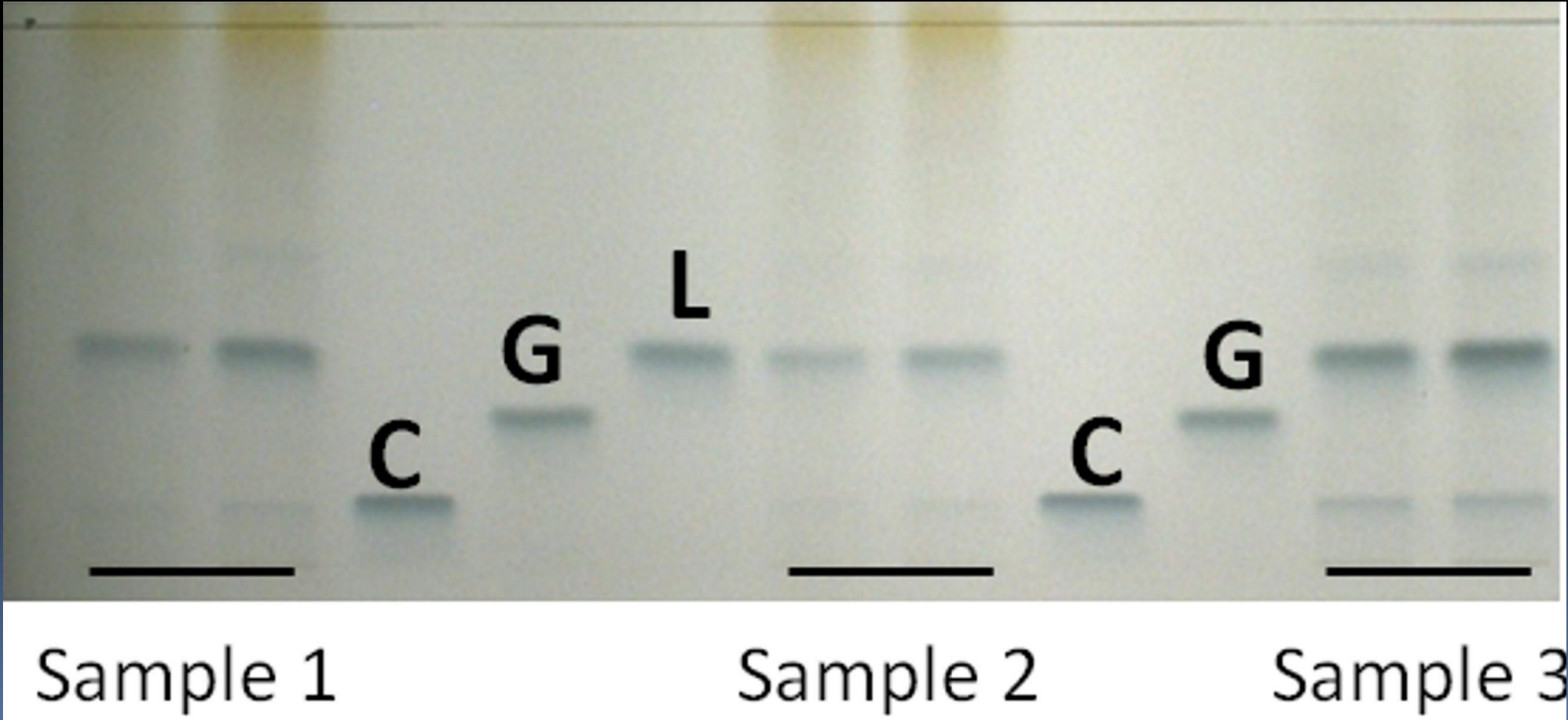
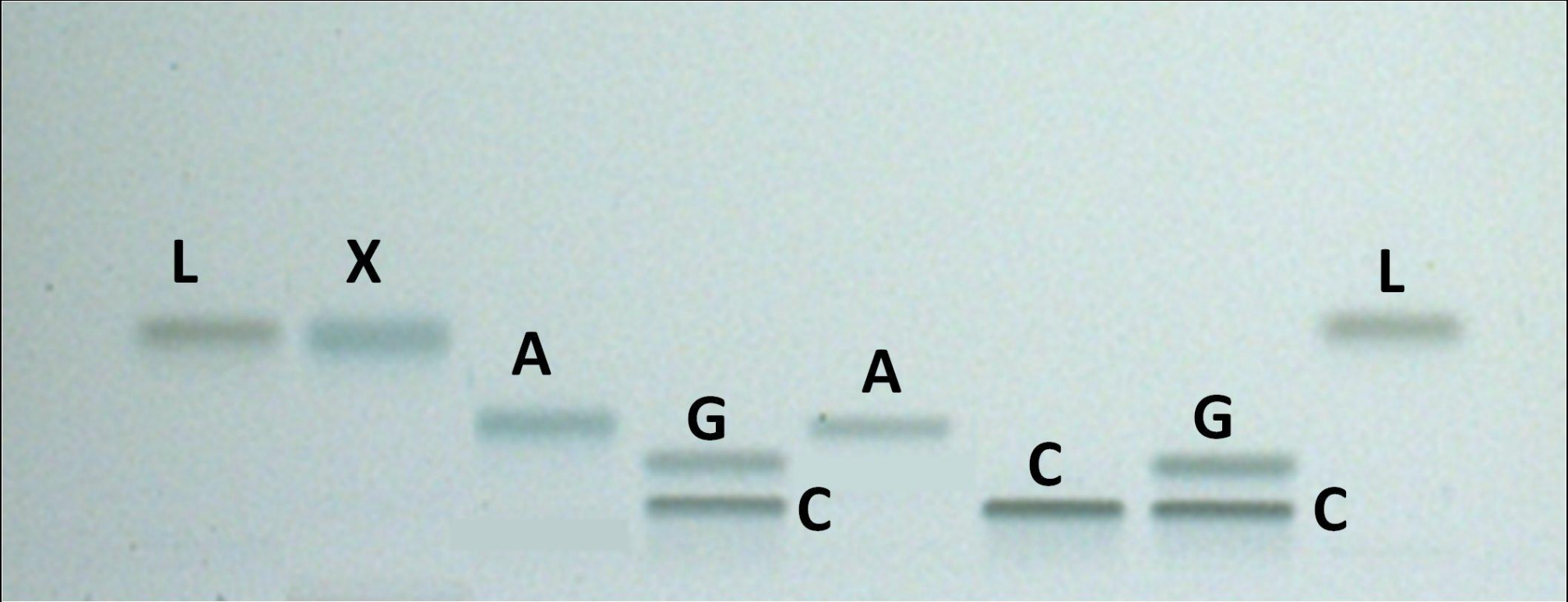


Levoglucosan and cellobiosan in wood pyrolisates



Chromatography of sugars in non impregnated plate to discard interference of glucose in levoglucosan determination

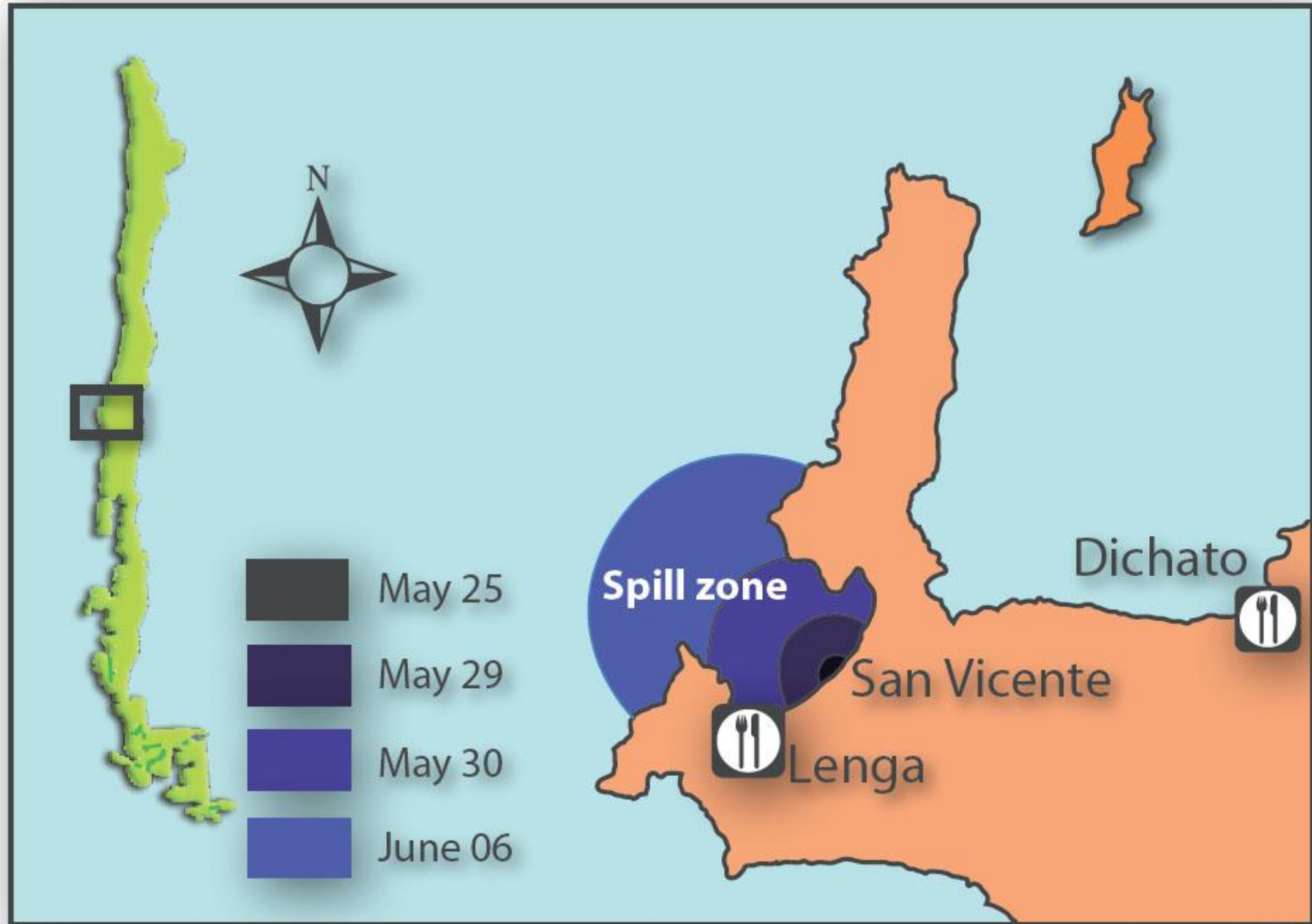
Mobile phase:
Butanol + Formic acid;
45+5, v/v

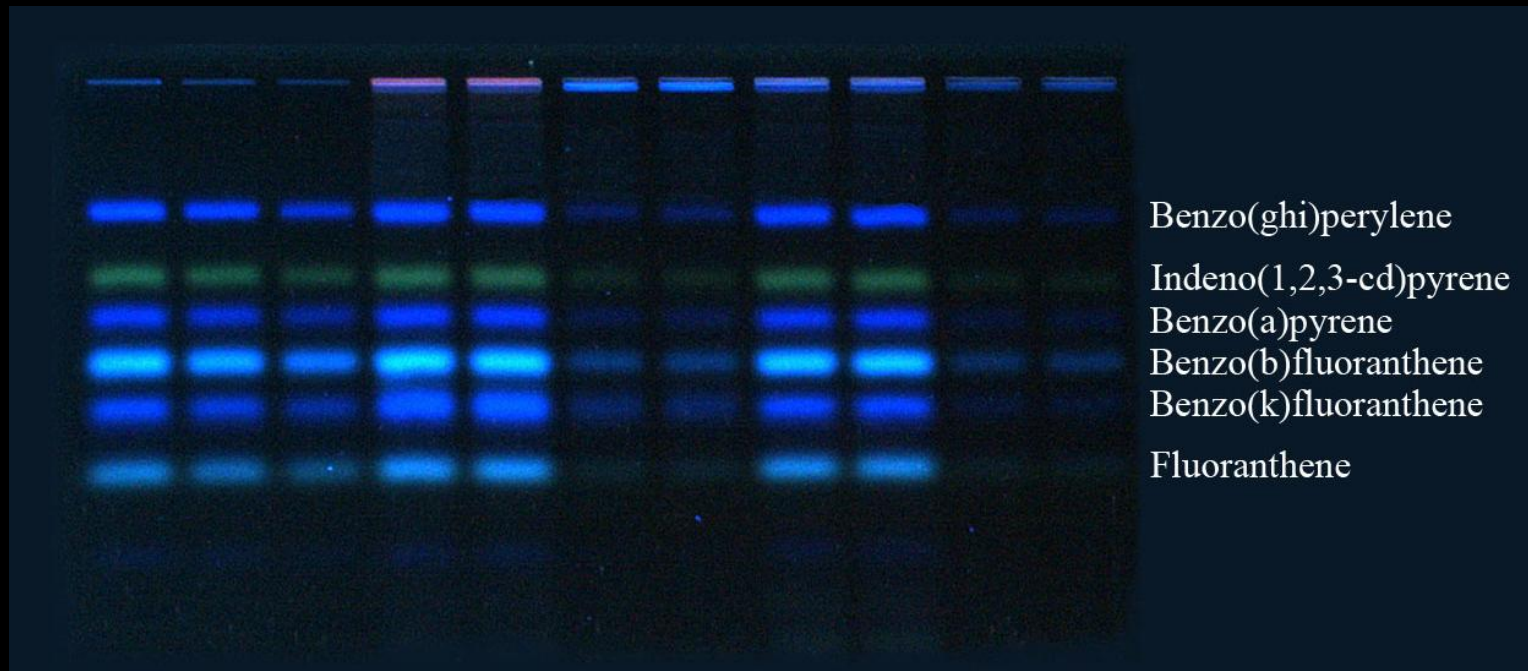


WHERE HPTLC IS THE CHOICE TOOL

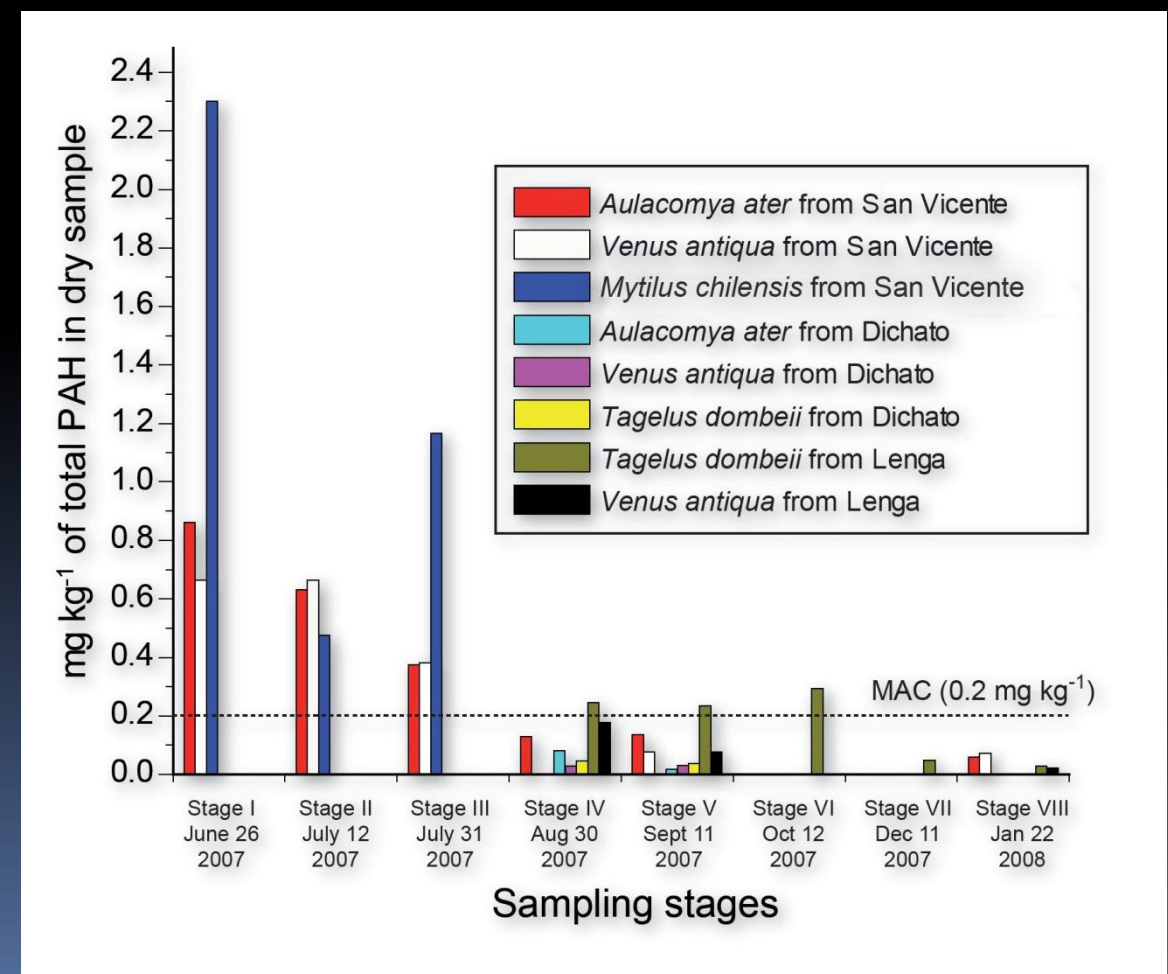
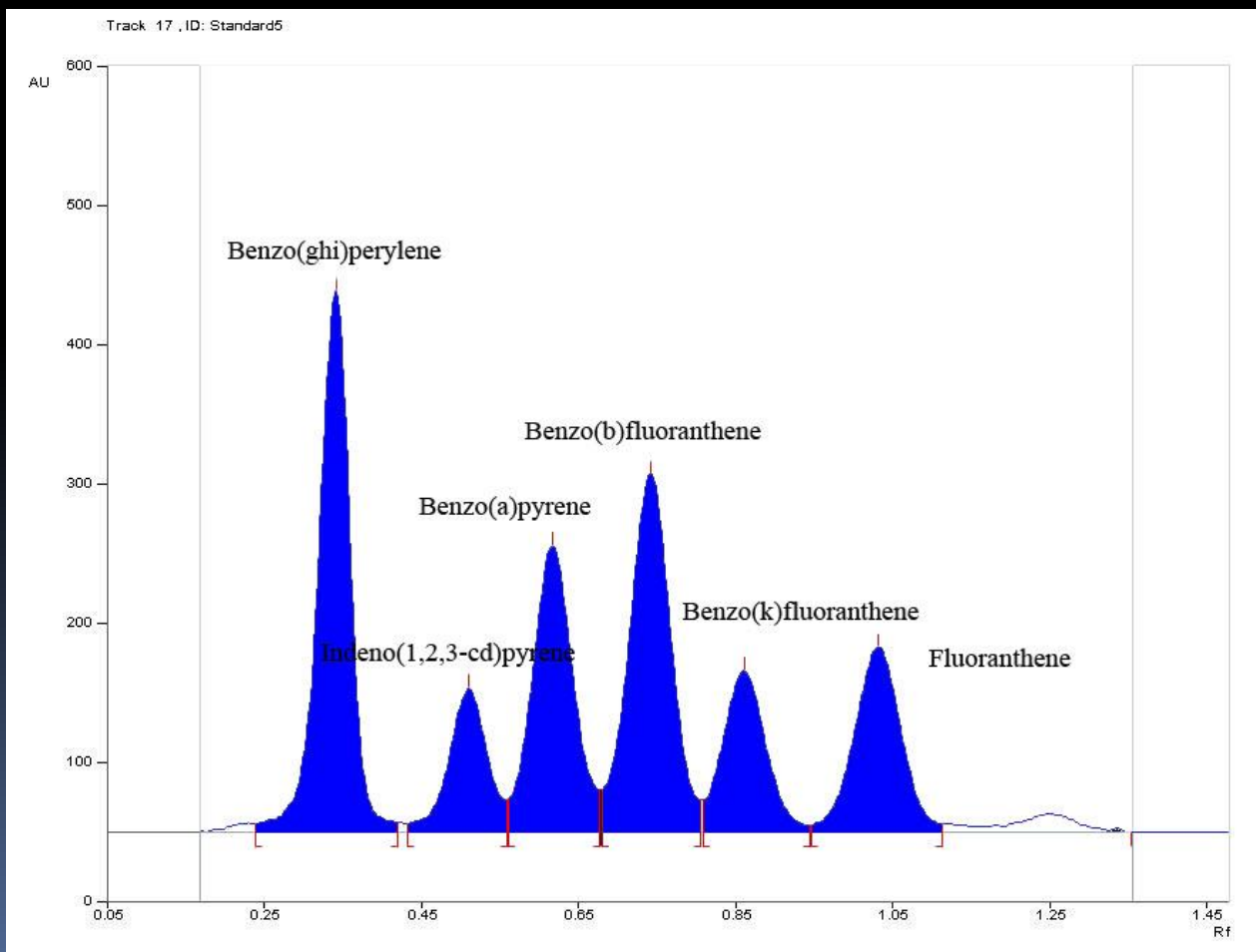
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Enviromental accident -Oil spill in Talcahuano bay



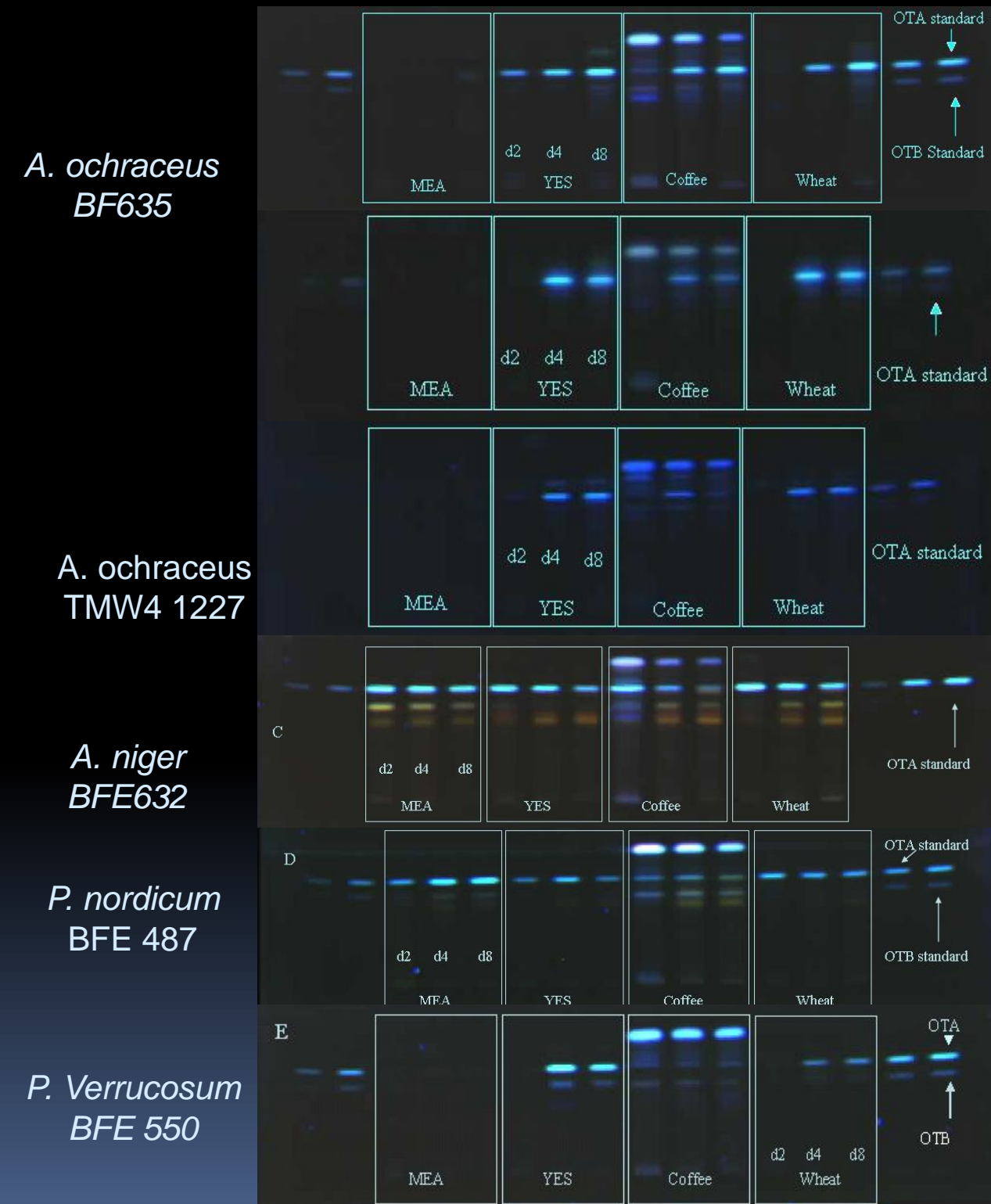


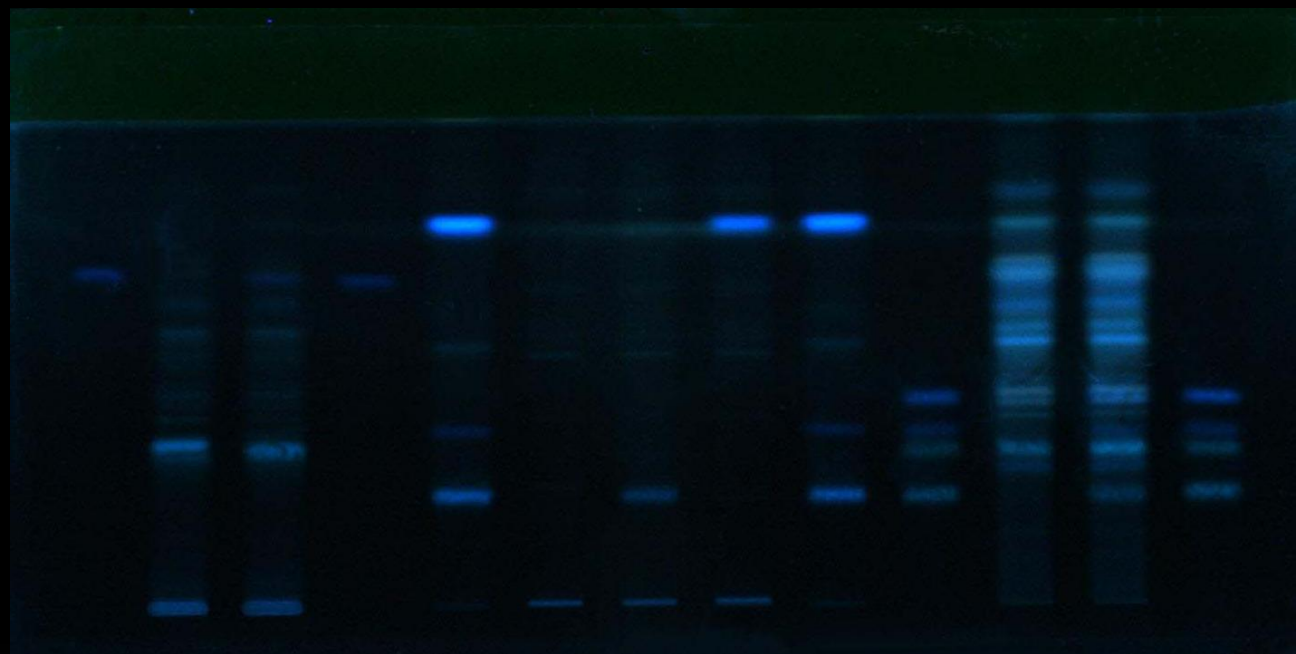
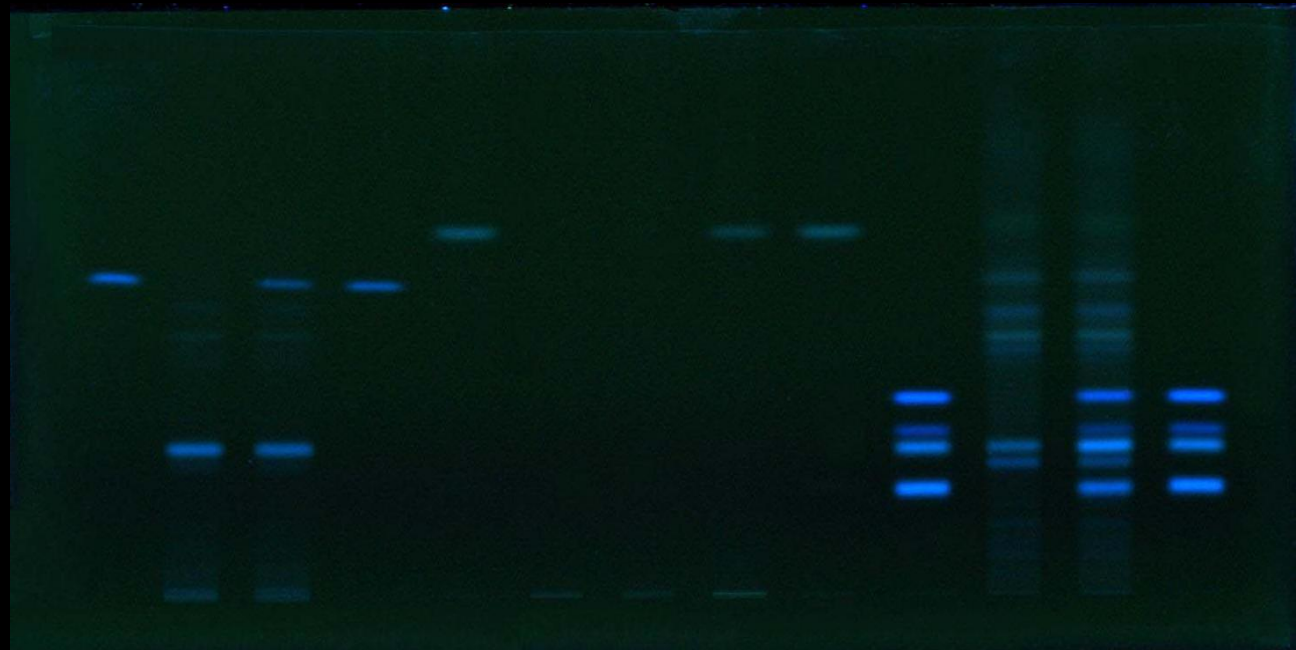
The HPTLC method implemented to study decline of PAHs content in the seafood collected from the areas in risk by the oil spill



Ochratoxin A

Production of OTA by different strains of Aspergillus and Penicillium in a variety of culture were tested. The HPTLC allowed the detection and identity confirmation in a very fast way





*Screening of
Mycotoxins
Aflatoxins
Ochratoxin A
Fusarium toxins*

Papers dealing with use of HPTLC in drugs analysis

Relación entre niveles de carbamazepina en saliva y plasma: Estudio piloto

Sigrid Mennickent C^{1a}, Mario Vega H^{2b}, Carmen Gloria Godoy M^{1c}, M. Doris León H³.

Saliva and plasma levels of carbamazepine have a poor correlation: a pilot study

International Journal of Psychiatry in Clinical Practice, 2010; 14: 41–46

informa
healthcare

ORIGINAL ARTICLE

Determination of clozapine in serum of patients with schizophrenia as a measurement of medication compliance

S. MENNICKENT¹, A. SOBARZO¹, M. VEGA², M. DE DIEGO¹, G. GODOY¹, P. RIOSECO³ & L. SAAVEDRA³

¹Department of Pharmacy, Faculty of Pharmacy, University of Concepción, Concepción, Chile, ²Department of Bromatology, Nutrition and Dietetic, Faculty of Pharmacy, University of Concepción, Concepción, Chile, ³Department of Psychiatry, Faculty of Medicine, University of Concepción, Concepción, Chile and Guillermo Grant Benavente Hospital, Concepción, Chile

J. Sep. Sci. 2007, 30, 2167–2172

2167

Sigrid Mennickent¹
Alejandra Sobarzo¹
Mario Vega²
Carmen Gloria Godoy¹
Marta de Diego¹

Short Communication

Quantitative determination of clozapine in serum by instrumental planar chromatography

¹Department of Pharmacy, Faculty of Pharmacy, University of Concepción, Concepción, Chile

²Department of Bromatology, Nutrition and Dietetics, Faculty of Pharmacy, University of Concepción, Concepción, Chile

An instrumental planar chromatographic (HPTLC) method for quantitative analysis of clozapine in human serum was developed and validated. Clozapine was extracted with *n*-hexane–isoamyl alcohol (75:25 v/v). The chromatographic separation was achieved on precoated silica gel F 254 HPTLC plates using a mixture of chloroform and methanol (9:1 v/v) as mobile phase. Quantitative analyses were carried out by densitometry at a wavelength of 290 nm. The method was linear between 10 and 100 ng/spot, corresponding to 0.10 and 1.00 ng/μL of clozapine in human serum after extraction process and applying 10 μL to the chromatographic plates. The method correlation coefficient was 0.999. The intra-assay variation was between 2.10 and 3.33% (*n* = 5) and the interassay was between 2.67 and 4.44% (*n* = 9). The

J. Sep. Sci. 2007, 30, 1893–1898

1893

Sigrid Mennickent¹
Mario Nail¹
Mario Vega²
Marta de Diego¹

Short Communication

Quantitative determination of L-DOPA in tablets by high performance thin layer chromatography

¹Department of Pharmacy, Faculty of Pharmacy, University of Concepción, Concepción, Chile

²Department of Bromatology, Nutrition and Dietetic, Faculty of Pharmacy, University of Concepción, Concepción, Chile

A densitometric high performance thin-layer chromatographic (HPTLC) method was developed and validated for quantitative analysis of L-DOPA in tablets. Chromatographic separation was achieved on precoated silica gel F 254 HPTLC plates using a mixture of acetone–chloroform–*n*-butanol–acetic acid glacial–water (60:40:40:35 v/v/v/v) as mobile phase. Quantitative analysis was carried out at a wavelength of 497 nm. The method was linear between 100 and 500 ng/μL with

772

J. Sep. Sci. 2007, 30, 772–777

Sigrid Mennickent¹
Loreto Pino¹
Mario Vega²
Carmen Gloria Godoy¹
Marta de Diego¹

Short Communication

Quantitative determination of haloperidol in tablets by high performance thin-layer chromatography

¹Department of Pharmacy, Faculty of Pharmacy, University of Concepción, Concepción, Chile

²Department of Bromatology, Nutrition and Dietetic, Faculty of Pharmacy, University of Concepción, Concepción, Chile

A densitometric high performance thin-layer chromatography (HPTLC) method was developed and validated for the quantitative analysis of haloperidol in tablets. Chromatographic separation was achieved on precoated silica gel F 254 HPTLC plates using a mixture of acetone/chloroform/*n*-butanol/acetic acid glacial/water (5:10:10:2.5:2.5 v/v/v/v/v) as the mobile phase. Quantitative analysis was carried out at a wavelength of 254 nm. The method was linear in the 10–100 ng/μL range, with a determination coefficient of 0.999. The coefficients of variation for precision were

1454

J. Sep. Sci. 2009, 32, 1454–1458

Sigrid Mennickent¹
Ricardo Fierro¹
Mario Vega²
Marta de Diego¹
C. Gloria Godoy¹

Original Paper

Instrumental planar chromatographic method for determination of carbamazepine in human serum

¹Department of Pharmacy, Faculty of Pharmacy, University of Concepción, Concepción, Chile

²Department of Bromatology, Nutrition and Dietetic, Faculty of Pharmacy, University of Concepción, Concepción, Chile

An instrumental planar chromatographic (HPTLC) method for quantification of carbamazepine in human serum was developed using liquid-liquid extraction with dichloromethane, fluorescence activation with perchloric acid 60% ethanol/water (1:1:1, v/v) and fluorescence detection. Planar chromatographic separation was performed on precoated silica gel F254 HPTLC plates using a mixture of ethyl acetate/toluene/methanol/acetic acid glacial (5:4:0.5:0.5, v/v) as mobile phase. Densitometric detection was done at 366 nm. The method was validated for linearity, precision

J. Sep. Sci. 2007, 30, 2167–2172

2167

Sigrid Mennickent¹
Alejandra Sobarzo¹
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Short Communication

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