

DEPARTAMENT DE QUÍMICA ANALÍTICA

NÚMERO	TEMA	TUTOR(S) ACADÈMIC(S) (si un és d'un altre departament, posa'l entre parèntesi)	TUTOR EXTERN (si escau)
1	Analytical study of archaeological lapislazuli	Antonio Doménech Carbó	
2	Characterization of historical silver objects by electroanalytical techniques	Antonio Doménech Carbó	
3	Provenance discrimination of archaeological ceramics combining spectroscopic and electrochemical techniques	Antonio Doménech Carbó	
4	Development of an integrated sampling and detection system for monitoring aflatoxins in food matrices	Adela Mauri Aucejo	
5	Development of an integrated sampling and detection system for monitoring environmental pollutants.	Adela Mauri Aucejo	
6	Analysis of Medicinal Plant Extracts Using High-Resolution Liquid Chromatography	José Ramón Torres Lapasió y María Celia García Álvarez-Coque	
7	Clinical analysis of active pharmaceutical ingredients and their metabolites in biofluids by HPLC	José Ramón Torres Lapasió y María Celia García Álvarez-Coque	
8	Analysis of sediments using non destructive techniques and ICP-MS.	Ángel Morales Rubio y M. Luisa Cervera Sanz	
9	Development of a fluorimetric device for aflatoxin determination in food.	M. Luisa cervera Sanz y Sergio Armenta Estrela	
10	Study of nutritional level in persimmon leaves.	Ángel Morales Rubio y M. Luisa cervera Sanz	
11	Analysis of archaeological building materials.	Ángel Morales Rubio y Sergio Armenta Estrela	
12	Passive sampling devices for drug analysis in wastewater.	Ángel Morales Rubio y Sergio Armenta Estrela	
13	Determination of emerging contaminants at the effluents of Wastewater Treatment Plants (WWTPs) using passive sampling devices	Sergio Armenta Estrela y Héctor Martínez Pérez-Cejuela	
14	Emerging contaminants	Lorenzo San Juan Navarro y Yolanda Moliner Martínez	
15	Colorimetric sensors	Neus Jornet Martínez y Carmen Molins Legua	
16	Chemical sensors for biomarkers study	Lorenzo San Juan Navarro y Yolanda Moliner Martínez	

17	Fluorescent analysis of PAHs in solid supports	Jorge Verdú Andrés y Roberto Sáez Hernández	
18	Machine Learning and Deep Learning for Forensic Analysis	Salvadó Garrigues- David Pérez Guaita	
19	Differentiation of Marijuana Buds and Leaves for Forensic Analysis	Miguel de la Guardia-David Pérez Guaita	
20	Development of an LC-MSMS Method for the Analysis of Urinary Oxylipins in Chronic Kidney Disease	Ángel Sánchez Illana - David Pérez Guaita	
21	Protein analysis in feed by vibrational spectroscopy	Miguel de la Guardia	
22	Analytical Strategies for the Quantification of Mycotoxins in Urine Samples	Olga Pardo Marín - Francesc Esteve Turrillas	
23	Application of Infrared Spectroscopy for Illicit Drug Identification	David Pérez Guaita - Francesc Esteve Turrillas	
24	Compositional study of the marijuana plant by Raman spectroscopy	Salvador Garrigues	
25	Determination of emerging contaminants in food	Olga Pardo Marín - Francesc Esteve Turrillas	
26	Development of sample treatment procedures for the extraction of mycotoxins	Daniel Gallart Mateu - Francesc Esteve Turrillas	
27	Determination of colorings in commercial products by micellar liquid chromatography	Juan Peris Vicente	
28	Use of micellar liquid chromatography to determine drugs in pharmaceutical formulations	Juan Peris Vicente	
29	Determination of UV filters in cosmetic products	Alberto Chisvert Sanía y Juan Luis Benedé Veiga	
30	Trace analysis of limited-volume biological samples	Alberto Chisvert Sanía y Juan Luis Benedé Veiga	
31	Fluorescent analysis of spiked spirits	M. Luisa Cervera Sanz y Roberto Sáez Hernández	
32	Affinity-based polymeric materials integrated with 3D-printed devices for biomarker sensing	Enrique Javier Carrasco Correa	
33	Custom-made functional filament for 3D-printing containing functional materials for sample preparation applications	Enrique Javier Carrasco Correa y José Manuel Herrero Martínez	
34	3D-Printed microdevice with removable blades containing functional materials for biomarker extraction in biological fluids	Enrique Javier Carrasco Correa y Juan Luis Benedé Veiga	
35	3D-Printed rotating disk with stretchable chains modified with mixed-mode polymers for selective solid-phase extraction	Enrique Javier Carrasco Correa y María Vergara Barberán	
36	Development of immersible 3D meshes with metal-organic frameworks (MOFs) for the extraction of emerging contaminants from seawater	Miriam Beneito Cambra	
37	Development of 3D-printed materials functionalized with metal-organic frameworks (MOFs) for the extraction of antibiotics as emerging contaminants in water	Miriam Beneito Cambra	

38	Development of sustainable cellulosic affinity sorbents for mycotoxin determination in foods	María Jesús Lerma García	
39	Determination of emerging contaminants using sustainable 3D-printed MOF-based devices	María Jesús Lerma García	
40	Smart 3D-printed aptamer-based devices for marine toxin capture and analysis	María Vergara Barberán	
41	Development of a MOF-nanozyme-based sensor for the sensitive detection of marine toxins	María Vergara Barberán	
42	Development of a cyanine dye-based colorimetric aptasensor for cortisol determination in saliva samples	Isabel Ten Doménech	
43	Development of a sensor device incorporating metal-organic frameworks for recognition of toxins in environmental waters	José Manuel Herrero Martínez y Héctor Martínez Pérez-Cejuela	
44	Development of an DNzyme-based aptasensor for histamine determination in foods	José Manuel Herrero Martínez y (Jorge González García)	
45	Development of paper-based microfluidic devices for the determination of emerging contaminants in saliva	Héctor Martínez Pérez Cejuela e Isabel Ten Doménech	
46	Use of aptasensors for the determination of allergenic proteins in legumes	Ernesto Francisco Sinó Alfonso	
47	Determination of emerging contaminants present in saliva	Ernesto Francisco Simó Alfonso y José Manuel Herrero Martínez	
48	Determination of allergenic proteins in honeys using selective recognition systems	Ernesto Francisco Sinó Alfonso	
49	Development of Enzymatic Deconjugation Methodologies for the Quantification of Urinary Mycotoxin Biomarkers	Olga Pardo Marin y Francesc A. Esteve Turrillas	
50	Enantioseparation of chiral compounds in liquid chromatography using a polysaccharide-based stationary phase.	Laura Escuder Gilabert y Salvador Sagrado	
51	Enantioseparation of chiral compounds in liquid chromatography using a brush-type stationary phase	M ^a José Medina Hernández y Yolanda Martín Biosca	

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1

Antonio Doménech Carbó

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Analytical study of archaeological lapislazuli

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Characterizing archaeological samples containing the blue pigment lapislazuli (or ultramarine blue) by means of spectroscopic and electrochemical techniques in order to discriminate provenances and gainin archaeometric information

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

Theoretical/experimental

VNIVERSITAT
E VALÈNCIA (ò*) Facultat de Química

DEGREE FINAL PROJECT
CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Antonio Doménech Carbó

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Characterization of historical silver objects by electroanalytical techniques

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Obtaining information of archaeometric value concerning composition of the metallic core, corrosion products and mechanisms, manufacturing techniques and provenance/dating of historical silver objects using electroanalytical techniques centred on voltammetry

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

Theoretical/experimental

VNIVERSITAT
E VALÈNCIA (ò*) **Facultat de Química**

**DEGREE FINAL PROJECT
CHEMISTRY DEGREE**

ACADEMIC TUTOR 1

Antonio Doménech Carbó

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Provenance discrimination of archaeological ceramics combining spectroscopic and electrochemical techniques

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Elucidation of the production of local workshops from products of importation in samples of ceramicware from archaeological sites of iberian age

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

Theoretical/Experimental

VNIVERSITAT ID VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 ADELA MAURI AUCEJO

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): QUÍMICA ANALÍTICA

TITLE (Mandatory in English)

Development of an integrated sampling and detection system for monitoring aflatoxins in food matrices

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

L'objectiu general és desenvolupar un sistema integrat de mostreig i detecció d'aflatoxines en infusions i derivats lactis mitjançant el disseny de mostreadors adsorbents i la mesura directa de la seua fluorescència sobre el suport sòlid, eliminant l'ús de dissolvents d'elució. Per tant, com a objectius específics: es dissenyaran els mostrejadors, s'optimitzara la retenció del contaminants i també, les condicions instrumentals de mesura.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

El projecte s'estructurarà en cinc fases combinant la recerca teòrica i l'experimental sota els principis de la Química Verda. En primer lloc, es realitzarà una revisió bibliogràfica exhaustiva sobre l'estat de l'art de les aflatoxines en infusions i lactis, així com dels materials adsorbents existents. En segon lloc, es durà a terme el disseny i síntesi del suport adsorbent, optimitzant la seua selectivitat cap a les micotoxines. La tercera fase consistirà en els assajos d'exposició en les matrius alimentàries complexes per a avaluar l'eficiència de retenció i neteja del mostreador. En quart lloc, s'optimitzaran els paràmetres espectrofluorimètrics per a la lectura directa de les aflatoxines sobre la superfície del sòlid. Finalment, es validaran els paràmetres de qualitat del mètode. L'eliminació d'extraccions amb dissolvents orgànics tòxics minimitza els residus, oferint un cribratge alimentari ràpid, net i sostenible.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 ADELA MAURI AUCEJO

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): QUÍMICA ANALÍTICA

TITLE (Mandatory in English)

Development of an integrated sampling and detection system for monitoring environmental pollutants.

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

L'objectiu general del treball és desenvolupar un sistema integrat de mostreig i detecció d'alquilfenols en mostres ambientals utilitzant polímers de beta-ciclodextrina com a adsorbents i detectar els contaminants directament sobre el sòlid mitjançant espectrofluorimetria, eliminant així l'ús de dissolvents minimitzant els riscos ambientals i humans, consolidant un sistema d'anàlisi més ràpid, net i per tant, més sostenible.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

El projecte s'estructurarà en una revisió bibliogràfica i quatre fases experimentals basades en els principis de la Química Verda (reducció de residus i economia d'àtoms). En primer lloc, es durà a terme la síntesi i caracterització del polímer de beta-ciclodextrina, optimitzant les condicions per a obtenir un suport sòlid homogeni i altament afí als analits. En segon lloc, es realitzaran els assajos d'exposició per a avaluar la capacitat de retenció i captació d'alquilfenols en matrius mediambientals mitjançant la formació de complexos d'inclusió. La tercera fase consistirà en l'optimització de la lectura en l'equip de fluorescència, dissenyant un suport d'anàlisi directa sobre la superfície sòlida. Finalment, es validaran els paràmetres analítics del mètode.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 José Ramón Torres Lapasió

ACADEMIC TUTOR 2 María Celia García Álvarez-Coque

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Química Analítica

TITLE (Mandatory in English)

Analysis of Medicinal Plant Extracts Using High-Resolution Liquid Chromatography

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Proporcionar al estudiante una formación sólida y completa tanto en los fundamentos teóricos como en los aspectos prácticos de la cromatografía líquida de fase inversa.
- Introducir al estudiante en la metodología habitual de un trabajo de investigación: búsqueda bibliográfica, interpretación crítica, análisis riguroso y presentación de resultados (redacción de memorias, elaboración y lectura de artículos científicos, preparación de pósters para congresos, entre otros).
- Familiarizar al estudiante con programas informáticos para la adquisición, tratamiento e interpretación de los datos experimentales, y presentación de resultados.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Preparación de eluyentes empleados en cromatografía líquida en fase inversa.
- Aprendizaje de la puesta a punto y operación de un sistema cromatográfico con gradientes de disolvente orgánico.
- Extracción e interpretación de información a partir de cromatogramas multianálisis.
- Análisis de los componentes presentes y caracterización de una planta medicinal.
- Uso y control de una estación de datos para la gestión integral de un cromatógrafo.
- Optimización de las condiciones de separación para el desarrollo de un método analítico y su posterior validación.
- Procesamiento y análisis de datos a partir de programas de ordenador.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 José Ramón Torres Lapasió

ACADEMIC TUTOR 2 María Celia García Álvarez-Coque

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Química Analítica

TITLE (Mandatory in English)

Clinical analysis of active pharmaceutical ingredients and their metabolites in biofluids by HPLC

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Proporcionar al estudiante una formación sólida y completa tanto en los fundamentos teóricos como en los aspectos prácticos de la cromatografía líquida de fase inversa.
- Introducir al estudiante en la metodología habitual de un trabajo de investigación: búsqueda bibliográfica, interpretación crítica, análisis riguroso y presentación de resultados (redacción de memorias, elaboración y lectura de artículos científicos, preparación de pósters para congresos, entre otros).
- Familiarizar al estudiante con programas informáticos para la adquisición, tratamiento e interpretación de los datos experimentales, y presentación de resultados.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Preparación de eluyentes empleados en cromatografía líquida en fase inversa.
- Aprendizaje de la puesta a punto y operación de un sistema cromatográfico con gradientes de disolvente orgánico.
 - Extracción e interpretación de información a partir de cromatogramas multianalito.
 - Análisis de los componentes presentes y caracterización de una planta medicinal.
 - Uso y control de una estación de datos para la gestión integral de un cromatógrafo.
 - Optimización de las condiciones de separación para el desarrollo de un método analítico y su posterior validación.
 - Procesamiento y análisis de datos a partir de programas de ordenador.

VNIVERSITAT DE VALÈNCIA Facultat de Química

TEMA TREBALL FI DE GRAU GRAU EN QUÍMICA

TUTOR/A ACADÈMIC/A: Àngel Morales Rubio

TUTOR/A ACADÈMIC/A (si escau): M. Luisa cervera Sanz

TUTOR/A EXTERN/A (si escau):

TÍTOL

Analysis of sediments using non destructive techniques and ICP-MS.

OBJECTIUS

- Development of analytical methodology for the analysis of sediments.
- Direct detection of the major and minor components using XRF.
- Crushing of the samples.
- Acid digestion process for the extraction of trace elements and detection by ICP-MS.
- Statistical treatment of the obtained results.

METODOLOGIA

- 1.- Bibliographic review in the databases.
- 2.- Select the sample treatment parameters and the measurement conditions of the instrumentation used.
- 3.- Establish the analytical properties.
- 4.- Establish the appropriate calibration system for XRF and ICP-MS.
- 5.- Analyze the sediment samples.
- 6.- Write the TFG report.

VNIVERSITAT DE VALÈNCIA (Ò*) Facultat de Química

TEMA TREBALL FI DE GRAU GRAU EN QUÍMICA

TUTOR/A ACADÈMIC/A: M. Luisa Cervera Sanz

TUTOR/A ACADÈMIC/A (si escau): Sergio Armenta Estrela

TUTOR/A EXTERN/A (si escau):

TÍTOL

Development of a fluorimetric device for aflatoxin determination in food.

OBJECTIUS

- Development of a 3D device for aflatoxin determination.
- Evaluation of different sample treatment methodologies including extraction, clean-up and analyte preconcentration procedures.
- Validation of the methodology in terms of linearity, precision, accuracy, LOD and LOQ.
- Analysis of food samples.

METODOLOGIA

- 1.- Bibliographic review on the background of the aflatoxin determination.
- 2.- Select the sample treatment parameters and the measurement conditions of the instrumentation used.
- 3.- Establish the analytical properties.
- 4.- Validation of the analytical procedure.
- 5.- Sample analysis.
- 6.- Writing of the TFG report.

VNIVERSITAT DE VALÈNCIA (ò*) Facultat de Química

TEMA TREBALL FI DE GRAU GRAU EN QUÍMICA

TUTOR/A ACADÈMIC/A: M. Luisa Cervera Sanz

TUTOR/A ACADÈMIC/A (si escau): Àngel Morales Rubio

TUTOR/A EXTERN/A (si escau):

TÍTOL

Study of nutritional level in persimmon leaves.

OBJECTIUS

- Development of analytical methodology for the analysis of leaves.
- Direct detection of the macro and micronutrients using X-ray fluorescence.
- Direct measurement of leaves by NIR.
- Crushing of the samples.
- Acid digestion process for the extraction of trace elements and detection by ICP-OES.
- Statistical treatment of the obtained results.

METODOLOGIA

- 1.- Bibliographic review in the databases.
- 2.- Select the sample treatment parameters and the measurement conditions of the instrumentation used.
- 3.- Establish the analytical properties.
- 4.- Establish the appropriate calibration system for NIR, XRF and ICP-OES.
- 5.- Analyze leaves and establish relationships.
- 6.- Write the TFG report.

VNIVERSITAT DE VALÈNCIA Facultat de Química

TEMA TREBALL FI DE GRAU GRAU EN QUÍMICA

TUTOR/A ACADÈMIC/A: Àngel Morales Rubio

TUTOR/A ACADÈMIC/A (si escau): Sergio Armenta Estrela

TUTOR/A EXTERN/A (si escau):

TÍTOL

Analysis of archaeological building materials.

OBJECTIUS

- Development of analytical methodology for the analysis of archaeological building materials.
- Direct detection of the major and minor components using XRF.
- Crushing of the samples.
- Extraction of anions and detection by Ionic Chromatography.
- Statistical treatment of the obtained results.

METODOLOGIA

- 1.- Bibliographic review in the databases.
- 2.- Select the sample treatment parameters and the measurement conditions of the instrumentation used.
- 3.- Establish the analytical properties.
- 4.- Establish the appropriate calibration system for XRF and IC.
- 5.- Analyze the building materials.
- 6.- Write the TFG report.

VNIVERSITAT DE VALÈNCIA (Ò*) Facultat de Química

TEMA TREBALL FI DE GRAU GRAU EN QUÍMICA

TUTOR/A ACADÈMIC/A: Sergio Armenta Estrela

TUTOR/A ACADÈMIC/A (si escau): Àngel Morales Rubio

TUTOR/A EXTERN/A (si escau):

TÍTOL

Passive sampling devices for drug analysis in wastewater.

OBJECTIUS

- Development of passive samplers for the retention of analytes of interest in wastewater.
- Calibration of the passive samplers in laboratory conditions.
- Obtention of the sampling rate.
- Use of the developed samplers in irrigation ditches, watercourses, and wastewater treatment plants.
- Statistical treatment of the obtained results.

METODOLOGIA

- 1.- Bibliographic review in the databases.
- 2.- Select the sample treatment parameters and the measurement conditions of the instrumentation used.
- 3.- Establish the analytical properties.
- 4.- Establish the appropriate calibration system with standards
- 5.- Analyze wastewater samples.
- 6.- Write the TFG report.

**DEGREE FINAL PROJECT
CHEMISTRY DEGREE**

ACADEMIC TUTOR 1 Sergio Armenta Estrela

ACADEMIC TUTOR 2 Héctor Martínez Pérez-Cejuela

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Determination of emerging contaminants at the effluents of Wastewater Treatment Plants (WWTPs) using passive sampling devices

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Development of passive samplers for emerging contaminants.
- Calibration of the passive samplers and obtention of the sampling rate.
- Use of the developed samplers to analyze the effluents of wastewater treatment plants.
- Analysis of the obtained results.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- 1.- Bibliographic review.
- 2.- Analytical validation of the LC-MS procedure.
- 3.- Characterization of the passive sampling device.
- 4.- Calibration of the passive sampling.
- 5.- Application of the passive sampling to the effluents of WWTPs.
- 6.- Write the TFG report.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Lorenzo San Juan Navarro

ACADEMIC TUTOR 2 Yolanda Moliner Martínez

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Emerging contaminants

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The objective of the proposed work is the development of characterization, separation and sample pretreatment methods for the study of emerging contaminants in matrices of interest, mainly environmental samples. Firstly, sample pretreatment technique and detection technique will be selected as a function of the analysis requirements. Subsequently, the validation and application of studied procedure will be evaluated for the analysis of real samples.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The methodology will be the following:

- Bibliographic review
- Selection of the emerging pollutants
- Selection of sample treatment and analysis techniques
- Optimization of experimental variables
- Sample analysis
- Preparation and elaboration of the report for the Final Degree Project.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S):

TITLE (Mandatory in English)

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The goal of this project is the development of colorimetric sensors based on the immobilisation of the reagents onto different polymeric supports (cellulose, PDMS, PMMA, PVP, zein...), using different preparation techniques (electrospinning, solvent casting...). The obtained sensors will be characterized (by diffuse reflectance, IR...) and evaluated regarding their analytical performance. Finally, the sensors will be applied to the analysis of different analytes and matrices.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The methodology to follow will be the following:

- Bibliographic review.
- Selection of articles of interest.
- Synthesis of the colorimetric sensors
- Study of sample treatments and analytical performance
- Preparation of the report for the Final Degree Project.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Yolanda Moliner Martínez

ACADEMIC TUTOR 2 Lorenzo San Juan Navarro

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Chemical sensors for biomarkers study

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The objective of this project is the development of chemical sensors for the analysis of biological samples. For this aim, sample treatment techniques will be applied to the analytes of interest. Detection will be based on analysis techniques such as portable optical spectroscopy and miniaturized chromatographic techniques, particularly, liquid chromatography with different detection systems (UV-vis and MS).

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The methodology is the following:

- Bibliographic review
- Selection of analytes and samples of interest
- Selection of sample treatment and analysis techniques
- Optimization of experimental variables
- Sample analysis
- Preparation and elaboration of the report for the Final Degree Project.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Jorge Verdú Andrés

ACADEMIC TUTOR 2 Roberto Sáez Hernández

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Fluorescent analysis of PAHs in solid supports

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- To analyse the retention of different PAHs in solid supports
- To use molecular fluorescence spectroscopy to determine PAHs in liquid samples
- To investigate the potential of fluorescence spectroscopy to analyse PAHs directly in solid supports

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

Solid supports will be synthesized and applied to liquid samples in order to retain different PAHs compounds. Initially, a representative selection of compounds will be made to study their retention onto the solid supports. In this preliminary step, fluorescence measurements will be made on the liquid (before and after interaction with the solid).

Next, once the retention properties of the materials is known, a experimental study will be carried out to investigate the potential measurement directly on the surface of the solid material. To this end, multivariate techniques will be employed to analyse the data (PCA, PARAFAC, MCR-ALS...).

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DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 David Pérez Guaita

ACADEMIC TUTOR 2 Salvador Garrigues Mateo

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Machine Learning and Deep Learning for Forensic Analysis

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Review the current state of the art in machine learning, deep learning, and artificial intelligence for the analysis of infrared (IR) and Raman spectroscopic data in forensic science.

Develop and optimise machine learning and deep learning models for the identification and classification of illicit drugs using IR and Raman spectroscopy.

Validate and compare the developed models using real and/or simulated datasets, assessing their performance, robustness, and applicability to real-world forensic analysis.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

Literature review on artificial intelligence, machine learning, deep learning, and sparse regression methods for analytical chemistry and spectroscopy applications.

Development of AI-based models, including deep learning architectures and optimisation strategies for spectral analysis, with a particular focus on sparse regression approaches such as Elastic Net for compound identification and quantification.

Implementation, training, and validation of the developed models using experimental and/or simulated datasets. Model development will be carried out using Python and MATLAB, depending on the student's background and interests, with emphasis on producing robust and interpretable solutions for real-world analytical applications.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 David Pérez Guaita

ACADEMIC TUTOR 2 Miguel de la Guardia

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Química Analítica

TITLE (Mandatory in English)

Differentiation of Marijuana Buds and Leaves for Forensic Analysis

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

1. Optimisation of a spectral acquisition methodology for the reliable measurement of cannabis buds and leaves, including sample preparation, instrumental parameters, and spectral preprocessing.
2. Acquisition of a comprehensive spectral dataset comprising a large cohort of cannabis buds, leaves, and representative mixtures to capture natural biological variability.
3. Development and validation of chemometric and machine learning models for the classification and quantitative analysis of cannabis samples, with the aim of extracting actionable information for real-world forensic applications.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Literature review on the forensic analysis of cannabis and the application of vibrational spectroscopy and machine learning for sample identification and classification.
- Analysis of real cannabis samples using near-infrared (NIR) and mid-infrared (MIR) spectroscopy with both benchtop and portable spectrometers, including spectral acquisition and preprocessing.
- Chemometric and machine learning data analysis for classification and regression using user-friendly software tools (e.g., Orange Data Mining) and/or MATLAB programming, depending on the student's experience and preferences.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Àngel Sánchez Illana

ACADEMIC TUTOR 2 David Pérez Guaita

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Department of Analytical Chemistry

TITLE (Mandatory in English)

Development of an LC-MS/MS Method for the Analysis of Urinary Oxylipins in Chronic Kidney Disease

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Development of an LC-MS/MS method for the quantitative analysis of a representative panel of urinary oxylipins associated with enzymatic and non-enzymatic lipid oxidation in the context of chronic kidney disease (CKD).
- Design of a scalable workflow suitable for large clinical sample sets, including clinical trials, and compatible with efficient sample preparation strategies and LC-MS/MS platforms commonly available in chromatographic and biomedical research laboratories.
- Validation of the method according to current guidelines and best-practice recommendations for oxylipin analysis.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The student will join a biomedical analytical chemistry workflow and learn how untargeted LC-HRMS/MS results and literature evidence can be translated into a focused targeted LC-MS/MS method. The first step will be the selection of a representative panel of urinary oxylipins, including compounds derived from enzymatic and non-enzymatic lipid oxidation pathways with relevance to chronic kidney disease (CKD). The project will involve hands-on work with advanced sample preparation and mass spectrometry platforms, including the development of a 96-well solid-phase extraction protocol for urine samples. This workflow will be optimized to improve analyte recovery, reduce matrix effects, and enable the processing of large clinical sample sets. The student will then optimize the LC-MS/MS method, working on chromatographic separation, ionization conditions, MS/MS transitions, internal standards, and calibration strategies. Finally, the method will be evaluated according to current guidelines and best-practice recommendations for oxylipin analysis, covering selectivity, sensitivity, recovery, matrix effects, precision, accuracy, and robustness.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Miguel de la Guardia

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Protein analysis in feed by vibrational spectroscopy

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Bibliographic study on the topic Analysis in feed by vibrational spectroscopy

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Bibliographic review of the methodologies published to date.
2. Writing the TFG report.

VNIVERSITAT DE VALÈNCIA (Ò*) Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Olga Pardo Marin

ACADEMIC TUTOR 2 Francesc A. Esteve Turrillas

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical chemistry

TITLE (Mandatory in English)

Analytical Strategies for the Quantification of Mycotoxins in Urine Samples

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Development and validation of an analytical methodology for the determination of mycotoxins in urine by liquid chromatography - tandem mass spectrometry.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Bibliographic review of the methodologies published to date.
2. Development of an analytical methodology for the determination of mycotoxins in urine.
3. Validation of the proposed methodology.
4. Analysis of samples.
5. Writing the TFG report.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 David Pérez Guaita

ACADEMIC TUTOR 2 Francesc A. Esteve Turrillas

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Application of Infrared Spectroscopy for Illicit Drug Identification

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Development of an analytical methodology for the identification of illicit drugs by infrared spectroscopy

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Bibliographic review of the methodologies published to date.
2. Development of an analytical methodology for the identification of illicit drugs by infrared spectroscopy
3. Validation of the proposed methodology.
4. Analysis of samples.
5. Writing the TFG report.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Salvador Garrigues

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Departamento de Química Analítica

TITLE (Mandatory in English)

Compositional study of the marijuana plant by Raman spectroscopy

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Study of the distribution of the main cannabinoids in the different parts of the marijuana plant using microscopy coupled to Raman spectroscopy.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Literature review on the use of Raman spectroscopy for the study of cannabis.
2. Selection of the experimental measurement mode and conditions for obtaining Raman spectra of different parts of the cannabis plant.
3. Identification of the main cannabinoids present in the Raman spectra of the cannabis plant.
4. Selection of characteristic bands of the cannabinoids of interest.
5. Mapping the distribution of the selected cannabinoids in the different parts of the plant.
6. Writing of the final degree project report.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Olga Pardo Marin

ACADEMIC TUTOR 2 Francesc A. Esteve Turrillas

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical chemistry

TITLE (Mandatory in English)

Determination of emerging contaminants in food

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Development and validation of an analytical methodology for the determination of emerging contaminants in food by liquid chromatography - tandem mass spectrometry.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Bibliographic review of the methodologies published to date.
2. Development of an analytical methodology for the determination of emerging contaminants in food.
3. Validation of the proposed methodology.
4. Analysis of samples.
5. Writing the TFG report.

VNIVERSITAT DE VALÈNCIA (Ò*) Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Daniel Gallart Mateu

ACADEMIC TUTOR 2 Francesc A. Esteve Turrillas

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical chemistry

TITLE (Mandatory in English)

Development of sample treatment procedures for the extraction of mycotoxins

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Development and validation of an analytical methodology for the determination of micotoxins in food by liquid chromatography - tandem mass spectrometry

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Bibliographic review of the methodologies published to date.
2. Development of an analytical methodology for the determination of micotoxins
3. Validation of the proposed methodology.
4. Analysis of samples.
5. Writing the TFG report.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Juan Peris Vicente

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Química Analítica

TITLE (Mandatory in English)

Determination of colorings in commercial products by micellar liquid chromatography

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Training the student in the methodology applied in research: bibliographic search, development and execution of the work plan, and collection, analysis and interpretation of experimental data.

Delving into the use of HPLC instrumentation.

Knowledge on the use and advantages of micellar solutions as mobile phases in HPLC.

Preparation and public defense of a working report.

Study of the influence of chromatographic conditions on retention and other instrumental responses. Optimization of an analytical method through interpretive strategies.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Bibliographic revision of the state-of-the-art.
2. Establishing the general experimental conditions and those that need to be studied. Design of the experimental design and preparation of the necessary solutions.
3. Experimental determination of the drugs as indicated in the experimental design.
4. Collection, statistical treatment and interpretation of experimental data. Evaluate the effect of mobile phase composition on retention by adjusting the modeling equation. Selection of the optimal analysis conditions.
5. Validation of the method.
6. Application to commercial samples

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Juan Peris Vicente

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Química Analítica

TITLE (Mandatory in English)

Use of micellar liquid chromatography to determine drugs in pharmaceutical formulations

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Train the student in the application of research methodology, including bibliographic search, design and execution of the work plan, as well as the measurement, statistical analysis and interpretation of experimental data.

Develop expertise in the use of HPLC instrumentation, with particular emphasis on the use and advantages of micellar solutions as mobile phases for drug determination.

Preparation and public exposition of a report in a clear and professional manner.

Study of the influence of the chromatographic conditions on retention and other instrumental responses. Optimization of an analytical method using interpretative strategies.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Bibliographic review of the state of the art.
2. Identification of the fixed experimental conditions and the variables to be studied. Elaboration of the experimental design and preparation of the required solutions.
3. Analysis of the compounds according to the established experimental design.
4. Recording, statistical treatment and interpretation of the experimental data. Evaluation of the effect of the mobile phase composition on retention through the fitting of an appropriate model equation. Selection of the optimal conditions for sample analysis.
5. Method validation.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 ALBERTO CHISVERT SANÍA

ACADEMIC TUTOR 2 JUAN LUIS BENEDÉ VEIGA

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): QUÍMICA ANALÍTICA

TITLE (Mandatory in English)

Determination of UV filters in cosmetic products

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Desarrollar un método analítico para la determinación en productos cosméticos de los filtros UV actualmente permitidos en la Unión Europea
- Estudiar las condiciones instrumentales en el instrumento de medida (cromatografía de líquidos)
- Validar el método analítico desarrollado
- Aplicar el método analítico desarrollado al análisis de muestras de productos cosméticos

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Se seleccionarán los filtros UV de reciente incorporación en el Reglamento Europeo (CE) nº 1223/2009 sobre productos cosméticos
- Se realizarán los estudios para adaptar la norma europea EN 17156:2018 a los nuevos filtros UV
- Se validará el método analítico en base a parámetros como linealidad, límites de detección/cuantificación, exactitud, precisión, etc
- Se aplicará el método al análisis de muestras reales de diferente naturaleza (emulsiones, bálsamos, lociones, etc.)
- Se redactarán los experimentos realizados en forma de memoria, en base a la normativa de TFG de la Facultad de Química de la Universitat de València

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 JUAN LUIS BENEDÉ VEIGA

ACADEMIC TUTOR 2 ALBERTO CHISVERT SANÍA

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): QUÍMICA ANALÍTICA

TITLE (Mandatory in English)

Trace analysis of limited-volume biological samples

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Desarrollar un método analítico basado en técnicas de microextracción para la determinación de biomarcadores de interés relacionados con algún proceso patológico
- Estudiar y seleccionar las variables instrumentales en el instrumento de medida (cromatografía de líquidos o de gases, acoplada a espectrometría de masas) según el/los analito/s objeto de estudio
- Estudiar y seleccionar las condiciones de extracción más favorables para el/los compuesto/s objeto de estudio
- Validar el método analítico desarrollado
- Aplicar el método analítico desarrollado al análisis de muestras de fluidos biológicos

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Se seleccionarán el/los analito/s de interés, en base a las necesidades de las líneas de investigación del grupo de investigación al que se incorpore el/la estudiante en el momento de iniciación del TFG
- Se seleccionarán las técnicas de microextracción, tanto en fase sólida como en fase líquida que resulten más apropiadas para el problema a resolver
- Se seleccionará la técnica analítica (cromatografía de líquidos o cromatografía de gases, ambas acopladas a espectrometría de masas) que resulte más apropiada según el/los analito/s de interés
- Se realizarán estudios de optimización tanto en la etapa de medida como en la etapa de extracción
- Se validará el método analítico en base a parámetros como linealidad, límites de detección/cuantificación, exactitud, precisión, etc
- Se aplicará el método al análisis de muestras reales, con especial énfasis en el estudio de coeficientes de recuperación
- Se redactarán los experimentos realizados en forma de memoria, en base a la normativa de TFG de la Facultad de Química de la Universitat de València

VNIVERSITAT
E VALÈNCIA [Ò*] **Facultat de Química**

**DEGREE FINAL PROJECT
CHEMISTRY DEGREE**

ACADEMIC TUTOR 1 Maria Luisa Cervera Sanz

ACADEMIC TUTOR 2 Roberto Sáez Hernández

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Fluorescent analysis of spiked spirits

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- To evaluate the applicability of molecular fluorescence spectroscopy for the detection and quantification of selected spiking compounds in beverages.
- To assess the influence of concomitant fluorescent compounds naturally present in beverage matrices, such as quinine in tonic water, on the determination of the target analyte.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

In this work, the analysis of spiked beverages will be carried out using molecular fluorescence. Particularly, the spurious addition of certain fluorescent compounds (like certain pharmaceuticals) to the beverages will be carried out.

Methodologically, a first screening will be carried out to address the identification and quantification of the analytes in the samples using molecular fluorescence. Subsequently, the complexity of the matrix will be increased in order to address the influence of other concomitant compounds (for example, ethanol, quinine...).

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Enrique Javier Carrasco Correa

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Affinity-based polymeric materials integrated with 3D-printed devices for biomarker sensing

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The main objective of this work is to develop an integrated sensing platform combining affinity-based polymeric materials and dual 3D printing technologies (FDM and SLA) for the point-of-care colorimetric detection of a specific biomarker. This device will be designed to handle the entire sample treatment and sensing workflow internally, being fully compatible with smartphone readouts and the GoyaLab Indigo spectrometer.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The experimental workflow will begin with the synthesis of the affinity material (functionalized polymer with aptamer, MOF or other affinity ligands) pre-loaded with methylene blue to establish a competitive displacement assay. Concurrently, the device will be manufactured using a hybrid FDM and SLA 3D printing approach to combine structural robustness with high-resolution optical transparency for the measurement window. The internal architecture will incorporate a custom mechanism to compact the solid sorbent within the sensing zone while simultaneously isolating the liquid matrix. Finally, the analytical validation will be performed directly monitoring the colorimetric displacement using a smartphone camera and the GoyaLab Indigo portable spectrometer, optimizing flow and kinetic parameters to achieve a rapid and sensitive bioassay.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Enrique Javier Carrasco Correa

ACADEMIC TUTOR 2 José Manuel Herrero Martínez

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Custom-made functional filament for 3D-printing containing functional materials for sample preparation applications

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The main objective of this work is to develop custom-made functional filaments by incorporating advanced materials into a polymeric matrix, enabling the fabrication of 3D-printed devices tailored for solid-phase extraction applications.

Specific Objectives: To optimize the blending and extrusion parameters; To evaluate and fine-tune the 3D printing parameters; To characterize the morphology; To assess the extraction efficiency and performance of the 3D-printed functional devices in sample preparation

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The experimental workflow will be divided into four main stages:

1. Filament Manufacturing: Development of custom composite filaments based on a polymeric matrix (e.g., PLA, ABS) blended with functional materials (e.g., MOFs, carbon nanomaterials, or selective sorbents).
2. Design and 3D Printing: CAD design and FDM printing of an extraction device optimized to enhance extraction performance.
3. Characterization of Materials: Physicochemical characterization of the printed devices and raw materials using Scanning Electron Microscopy (SEM), X-ray diffraction (XRD), Fourier-Transform Infrared spectroscopy (FTIR), and other relevant techniques.
4. Sample Preparation: Evaluation of the 3D-printed devices for the solid-phase extraction of target analytes (e.g., emerging contaminants, allergens, toxins, etc.) from complex matrices.

VNIVERSITAT E VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Enrique Javier Carrasco Correa

ACADEMIC TUTOR 2 Juan Luis Benedé Veiga

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

3D-Printed microdevice with removable blades containing functional materials for biomarker extraction in biological fluids

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The main objective is to develop a 3D-printed microdevice with removable blades modified with functional materials for the extraction of selected biomarkers from biological fluids like saliva, urine, or serum. The project will focus on optimizing a user-friendly 3D micro-design and screening various advanced sorbents (polymers, MOFs, or selective ligands). Finally, the integrated platform will be validated through the extraction of targeted biomarkers from real matrices, followed by high-sensitivity determination using LC-MS/MS.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The experimental workflow will begin with the architectural design and fabrication of the microdevice and its removable blades using high-resolution 3D printing, optimizing the geometry to facilitate straightforward assembly and operation. Concurrently, different functional materials will be evaluated in dispersive solid-phase extraction mode to select the optimal sorbent. Once the optimal material is determined, a localized surface modification protocol will be established to immobilize it securely onto the 3D-printed blades. Parameters such as sample volume, extraction time, and elution conditions will be fine-tuned to validate the analytical performance of the functionalized microdevice using fortified biological fluids. Finally, real samples will be analyzed by LC-MS/MS for clinical biomarker monitoring.

VNIVERSITAT E VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Enrique Javier Carrasco Correa

ACADEMIC TUTOR 2 María Vergara Barberán

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

3D-Printed rotating disk with stretchable chains modified with mixed-mode polymers for selective solid-phase extraction

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The main objective of this work is to develop a solid-phase extraction platform based on a 3D-printed rotating disk containing stretchable chains for the simultaneous capture and sequential elution of oppositely charged analytes. Utilizing the proposed device, the specific goal is to chemically functionalize the chains in a segmented 3-and-3 design: three chains will be modified with a positively charged polymer, while the remaining three chains will be coated with a negatively charged polymer. This spatial and chemical segregation aims to establish a mixed-mode extraction system capable of isolating both cationic and anionic targets from a single matrix in parallel, allowing targeted and fractionated desorption

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The experimental workflow will begin with the manufacturing of the rotating disk device and its stretchable chains using stereolithography (SLA) 3D printing to ensure high-resolution geometries. Next, a localized surface modification protocol will be implemented to functionalize the strands: three chains will be coated with the META polymer to introduce permanent positive charges, and the other three will be modified with the AMPS polymer to provide negative charges. Once the dual-functionalized platform is prepared, analytical validation will be performed by conducting extraction procedures with model mixtures containing ionic analytes. Finally, parameters such as sample pH and rotation speed will be optimized to maximize electrostatic binding, followed by the development of a fractionated elution strategy to recover each chemical fraction separately prior to liquid chromatography determination.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Miriam Beneito Cambra

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Development of immersible 3D meshes with metal-organic frameworks (MOFs) for the extraction of emerging contaminants from seawater

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Develop and evaluate devices printed by stereolithography (SLA) and functionalized with metal-organic frameworks (MOFs) for the extraction of emerging contaminants from seawater. To this end, the most suitable materials and analytes will be selected, immersible devices will be designed and printed, MOFs will be incorporated onto their surface, and their stability, extraction capacity, and elution performance in saline aqueous media will be preliminarily evaluated.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The work will begin with a literature review aimed at selecting metal-organic frameworks (MOFs) and emerging contaminants of interest for extraction from seawater. Devices will be designed using computer-aided design tools and 3D-printed by stereolithography (SLA), using geometries that promote contact between the aqueous sample and the functionalized surface. Subsequently, the surface incorporation of the MOFs onto the printed devices will be studied using different deposition or anchoring strategies. The resulting pieces will be characterized using suitable techniques to confirm the presence of the extraction material, assess its distribution on the surface, and evaluate the stability of the coating. Finally, preliminary extraction assays will be performed using solutions of emerging contaminants in aqueous media. Basic experimental conditions, such as contact time, stirring or flow, and device stability will be evaluated.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Miriam Beneito Cambra

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Development of 3D-printed materials functionalized with metal-organic frameworks (MOFs) for the extraction of antibiotics as emerging contaminants in water

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Development of polymeric materials fabricated by stereolithography (SLA) 3D printing and modified through the incorporation of functional monomers, with the aim of promoting the subsequent integration of metal-organic frameworks (MOFs) onto their surface and evaluating their potential application in the extraction of antibiotics from aqueous samples.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The work will begin with the preparation of different resin formulations modified through the incorporation of functional monomers. These formulations will be used to fabricate SLA-printed pieces, evaluating their printability, reproducibility, and mechanical stability. Subsequently, chemical modification strategies will be studied to introduce suitable functional groups onto the surface of the printed pieces, with the aim of promoting the subsequent incorporation of MOFs. In parallel, the performance of different MOFs as adsorbent materials will be evaluated through preliminary dispersive solid-phase extraction assays, in order to select the most promising materials. The selected MOFs will then be incorporated onto the functionalized printed pieces, and the performance of the resulting materials will be compared with that of the corresponding controls. The pieces will be characterized to study the surface modification and the presence of the MOF. Finally, the extraction capability of the developed devices toward antibiotics in aqueous samples will be evaluated.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S):

TITLE (Mandatory in English)

Development of sustainable cellulosic affinity sorbents for mycotoxin determination in foods

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Modificación y caracterización de superficies celulósicas para el anclaje de ligandos de afinidad.
- Caracterización y evaluación del empleo de los materiales desarrollados para la extracción/separación de micotoxinas.
- Aplicación del dispositivo de extracción al análisis de muestras de alimentos.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Revisión bibliográfica sobre los antecedentes en el empleo de dispositivos basados en materiales celulósicos para la determinación de micotoxinas en matrices alimentarias.
- Estudio de las condiciones experimentales de síntesis del sorbente, así como su anclaje sobre soportes celulósicos.
- Caracterización morfológica de los sorbentes sintetizados mediante técnicas espectroscópicas y de microscopia electrónica de barrido.
- Evaluación de la retención de la micotoxina en los materiales diseñados.
- Validación de la metodología analítica propuesta.
- Aplicación del método desarrollado al análisis de muestras reales.
- Preparación, discusión y revisión del proyecto final.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S):

TITLE (Mandatory in English)

Determination of emerging contaminants using sustainable 3D-printed MOF-based devices

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Fabricación de piezas impresas en 3D empleando filamentos sostenibles para su posterior funcionalización con redes metalorgánicas (MOFs).
- Caracterización morfológica del MOF y evaluación de la retención de los dispositivos funcionalizados.
- Aplicación de los dispositivos funcionalizados a la extracción/captura de contaminantes emergentes en aguas.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Revisión bibliográfica sobre los antecedentes relativos al empleo de soportes extractivos usando impresión 3D.
- Estudio de las condiciones experimentales de síntesis del MOF y de su anclaje/deposición sobre el dispositivo impreso en 3D.
- Caracterización morfológica del MOF y del dispositivo funcionalizado mediante técnicas espectroscópicas y de microscopia electrónica de barrido.
- Evaluación de la retención de contaminantes emergentes en los dispositivos diseñados.
- Validación de la metodología analítica propuesta.
- Aplicación del método desarrollado al análisis de muestras reales.

VNIVERSITAT
E VALÈNCIA [Ò*] **Facultat de Química**

**DEGREE FINAL PROJECT
CHEMISTRY DEGREE**

ACADEMIC TUTOR 1 María Vergara Barberán

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Smart 3D-printed aptamer-based devices for marine toxin capture and analysis

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Desarrollar y caracterizar dispositivos impresos en 3D funcionalizados con aptámeros para su uso como materiales de reconocimiento selectivo.
- Evaluar la capacidad de los dispositivos desarrollados para la extracción y preconcentración de toxinas marinas.
- Aplicar la metodología desarrollada al análisis de muestras de productos marinos y alimentarios.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Revisión bibliográfica sobre dispositivos impresos en 3D funcionalizados con aptámeros para la extracción de toxinas marinas.
- Fabricación y modificación superficial de dispositivos impresos en 3D para el anclaje de aptámeros.
- Caracterización de los materiales desarrollados mediante técnicas espectroscópicas y de microscopía electrónica.
- Evaluación de la capacidad de extracción y retención de toxinas marinas.
- Validación de la metodología analítica propuesta.
- Aplicación del método al análisis de muestras reales.
- Preparación y redacción de la memoria final del TFG.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S):

TITLE (Mandatory in English)

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Sintetizar y caracterizar nanozymes basados en MOFs para su aplicación como elementos de reconocimiento y transducción.
- Evaluar el desempeño del sensor desarrollado para la detección selectiva de toxinas marinas.
- Aplicar el sensor al análisis de muestras alimentarias para la determinación de toxinas marinas.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Revisión bibliográfica sobre sensores basados en MOF-nanozymes para la detección de contaminantes y toxinas marinas.
- Síntesis y caracterización de los nanozymes basados en MOF mediante técnicas espectroscópicas y microscópicas.
- Fabricación y optimización del sensor para la detección de toxinas marinas.
- Evaluación de la sensibilidad, selectividad y capacidad de detección del sensor desarrollado.
- Validación de la metodología analítica propuesta.
- Aplicación del sensor al análisis de muestras reales.
- Preparación y redacción de la memoria final del TFG.

VNIVERSITAT
E VALÈNCIA (ò*) **Facultat de Química**

**DEGREE FINAL PROJECT
CHEMISTRY DEGREE**

ACADEMIC TUTOR 1 José Manuel Herrero Martínez

ACADEMIC TUTOR 2 Isabel Ten Doménech

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Development of a cyanine dye-based colorimetric aptasensor for cortisol determination in saliva samples

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Design and develop aptamer-based sensors (aptasensors) utilizing cyanine dye-based colorimetric assays for the selective and sensitive detection of cortisol.
- Select and optimize suitable aptamer-dye pairs to enable competitive binding mechanisms, and effective displacement upon target binding.
- Evaluate the analytical performance of the developed aptasensors in terms of sensitivity, detection limits, and response time.
- Test the applicability of the aptasensors in saliva samples

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Literature review on aptasensor platforms and cyanine dye-based strategies.
- Develop the aptasensor using cyanine dye-based format, and optimize conditions (e.g., buffer composition, pH, temperature, dye-to-aptamer ratio) for maximal signal change upon displacement.
- Evaluate the sensor's performance (LOD, dynamic range, selectivity, reproducibility, etc.)
- Apply the optimized aptasensor to real samples (e.g., spiked saliva) to evaluate matrix effects and practical usability.
- Preparation, discussion, and review of the final project.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 José Manuel Herrero Martínez

ACADEMIC TUTOR 2 Héctor Martínez Pérez-Cejuela

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry

TITLE (Mandatory in English)

Development of a sensor device incorporating metal-organic frameworks for recognition of toxins in environmental waters

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Design and develop of MOF sensing properties for the detection of relevant toxins.
- Select and optimize suitable platforms for portable sensing.
- Evaluate the analytical performance of the developed sensors
- Test the applicability of the sensors in environmental real samples

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Literature review on toxins, MOF and sensing.
- Develop the sensor using MOF as chromogenic/fluorogenic substrate, and optimize sensing conditions.
- Evaluate the sensor's performance (linear range, LOD, selectivity, reproducibility, etc.)
- Apply the optimized sensor to real samples and practical usability.
- Preparation, discussion, and review of the final project.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 José Manuel Herrero Martínez

ACADEMIC TUTOR 2 Jorge González García

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical Chemistry and Inorganic Chemistry

TITLE (Mandatory in English)

Development of an DNzyme-based aptasensor for histamine determination in foods

OBJECTIVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- Design and develop an aptamer-based sensor for the selective and sensitive detection of histamine
- Explore the use of a histamine-specific aptamer combined with a structure-switching strategy and DNzyme-based signal amplification.
- Optimize the experimental conditions affecting the fluorescent and colorimetric response
- Evaluate the analytical performance of the developed aptasensor
- Assess the applicability of the optimized aptasensor to real food samples

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- Literature review on aptamer-based sensors for histamine determination, structure-switching aptamers and DNzyme-assisted signal amplification strategies.
- Selection of a previously reported histamine-binding aptamer and design of complementary DNA probes for fluorescence/absorbance signal generation through target-induced strand displacement.
- Development of a fluorescent aptasensor based on a histamine-specific aptamer and a fluorophore/quencher-labelled complementary probe.
- Optimization of the main experimental conditions affecting the fluorescence/absorbance response, including aptamer/probe concentration, buffer composition, incubation time, etc.
- Evaluation of the analytical performance of the aptasensor (calibration curve, linear range, limit of detection, limit of quantification, reproducibility and selectivity).
- Application of the optimized method to food samples (wine, fish extracts or other products).
- Preparation, discussion, and review of the final project.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Héctor Martínez Pérez Cejuela

ACADEMIC TUTOR 2 Isabel Ten Doménech

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): ANALYTICAL CHEMISTRY

TITLE (Mandatory in English)

Development of Paper-Based Microfluidic Devices for the Determination of Emerging Contaminants in Saliva

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

- To design, fabricate, and optimize the microPAD platform and the analytical conditions for triclosan detection. To optimize the sensing chemistry and the experimental parameters to achieve sensitive and selective triclosan detection.
- To validate the developed method in terms of sensitivity, selectivity, accuracy, precision, and analytical performance.
- To apply the developed microPAD to the determination of triclosan in real saliva samples and evaluate its practical applicability.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

- To review existing analytical methods for triclosan determination, with a particular focus on paper-based microfluidic devices (MicroPADs).
- To design, fabricate, and calibrate the MicroPAD using triclosan standard solutions.
- To optimize key experimental parameters affecting the analytical performance of the device (e.g., sample volume, reagent concentration, reaction time, and detection conditions).
- To evaluate the analytical performance of the developed MicroPAD using real saliva samples and compare the results with those obtained by a reference analytical method.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Ernesto Francisco Simó Alfonso

ACADEMIC TUTOR 2

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Química Analítica

TITLE (Mandatory in English)

Use of aptasensors for the determination of allergenic proteins in legumes

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The main objective of this project is to develop an aptasensor for the determination of allergenic proteins in legumes. The project aims to explore the use of aptamers as selective recognition elements for relevant legume allergens. Special attention will be paid to the sensitivity, selectivity, and applicability of the proposed system in complex food matrices.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

A bibliographic review will be carried out on allergenic proteins present in legumes and on aptamer-based detection systems. The most relevant target proteins will be selected according to their allergenic importance and occurrence in legume samples. Specific aptamers reported in the literature or commercially available will be chosen for these proteins. The extraction conditions will be optimized. The aptamers will be immobilized on a suitable sensing platform, such as colorimetric system. The analytical response will be studied using standard solutions of the target allergenic proteins. Calibration curves will be obtained to determine sensitivity, linear range, and detection limits. Selectivity will be evaluated against non-target proteins and other components present in legumes. The optimized aptasensor will be applied to real or spiked legume samples.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Ernesto Francisco Simó Alfonso

ACADEMIC TUTOR 2 José Manuel Herrero Martínez

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Química Analítica

TITLE (Mandatory in English)

Determination of emerging contaminants present in saliva

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The project aims to identify relevant contaminants of interest, such as pharmaceuticals, personal care products, endocrine disruptors, or other compounds with potential health impact. It will also focus on selecting suitable sample treatment and detection methods for this complex biological matrix. Special attention will be paid to sensitivity, selectivity, and reliability of the proposed methodology. Finally, the work seeks to evaluate the potential use of saliva as a non-invasive sample for monitoring human exposure to emerging contaminants.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

A bibliographic review will be carried out on emerging contaminants detected in biological fluids, especially saliva. The most relevant target compounds will be selected according to their occurrence, toxicity, and analytical interest. An appropriate sample pretreatment procedure will be proposed to reduce matrix effects. Standard solutions of the selected contaminants will be used to develop the analytical method (HPLC-MS and GC-MS). Calibration curves will be prepared to determine sensitivity, linear range, and detection limits. The final procedure will be assessed in terms of feasibility, reproducibility, and potential use in exposure monitoring.

VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1: Ernesto Francisco Simó Alfonso

ACADEMIC TUTOR 2:

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Química Analítica

TITLE (Mandatory in English)

Determination of Allergenic Proteins in Honeys Using Selective Recognition Systems

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

The main objective of this project is to develop and evaluate selective recognition systems for the determination of allergenic proteins in honey samples, considering allergens from different botanical and animal origins.

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

The project will start with a bibliographic review on allergenic proteins potentially present in honey. Special attention will be paid to allergens from botanical sources, pollen, bee-derived materials, and animal origins. Target allergenic proteins will be selected according to their relevance and possible presence in honey samples. Specific aptamers reported in the literature or commercially available will be selected for these proteins.

A suitable sample pretreatment will be developed to extract the protein fraction from honey. Extraction conditions such as dilution, buffer composition, pH, and extraction time will be optimized.

The selected aptamers will be immobilized on an appropriate sensing platform. The immobilization procedure will be optimized to preserve aptamer recognition ability. Standard solutions of the target allergenic proteins will be used for method development. Calibration curves will be constructed to evaluate the analytical response. Analytical parameters such as sensitivity, linear range, and limit of detection will be determined.

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DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR 1 Olga Pardo Marin

ACADEMIC TUTOR 2 Francesc A. Esteve Turrillas

EXTERNAL TUTOR (if needed):

DEPARTMENT(S): Analytical chemistry

TITLE (Mandatory in English)

Development of Enzymatic Deconjugation Methodologies for the Quantification of Urinary Mycotoxin Biomarkers

OBJECTVES / OBJECTIUS / OBJETIVOS: (Choose the language)

Development and validation of an analytical methodology for the enzymatic deconjugation of mycotoxins in urine

METHODOLOGY / METODOLOGIA / METODOLOGÍA: (Choose the language)

1. Bibliographic review of the methodologies published to date.
2. Development of an analytical methodology for the enzymatic deconjugation of mycotoxins in urine
3. Validation of the proposed methodology.
4. Analysis of samples.
5. Writing the TFG report.

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DEGREE FINAL PROJECT
CHEMISTRY DEGREE

ACADEMIC TUTOR: Laura Escuder Gilabert

ACADEMIC TUTOR (if needed): Salvador Sagrado

EXTERNAL TUTOR (if needed):

Department: Química Analítica

TITLE (Mandatory in English)

Enantioseparation of chiral compounds in liquid chromatography using a polysaccharide based stationary phase.

OBJECTIVES / OBJECTIUS / OBJETIVOS (Choose the language)

Evaluar el potencial de una fase estacionaria quiral basada en polisacaridos de amilosa para la separación de enantiómeros de compuestos con propiedades fisicoquímicas diversas. Enantioseparation of chiral compounds in liquid chromatography using a polysaccharide-based stationary phase. Posible modelización inteligente del sistema HPLC quiral.

METHODOLOGY / METODOLOGIA / METODOLOGÍA (Choose the language)

Los estudios se realizarán mediante cromatografía líquida utilizando fases móviles hidro-orgánicas. Se evaluarán distintas condiciones experimentales que puedan influir en la resolución enantiomérica. Los ensayos se llevarán a cabo con compuestos orgánicos quirales de uso común. Se evaluará posible modelización inteligente del sistema HPLC quiral.

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VNIVERSITAT DE VALÈNCIA Facultat de Química

DEGREE FINAL PROJECT CHEMISTRY DEGREE

ACADEMIC TUTOR: M^a José Medina Hernández

ACADEMIC TUTOR (if needed): Yolanda Martín Biosca

EXTERNAL TUTOR (if needed):

Department: Química Analítica

TITLE (Mandatory in English)

Enantioseparation of chiral compounds in liquid chromatography using a brush type stationary phase

OBJECTIVES / OBJECTIUS / OBJETIVOS (Choose the language)

Evaluar el potencial de una fase estacionaria quiral basada en la fase estacionaria quiral tipo pirle de 1 (3,5 dinitrobenzamido) 1,2,3,4 tetrahidrofenantreno para la separación de enantiómeros de compuestos con propiedades fisicoquímicas diversas.

METHODOLOGY / METODOLOGIA / METODOLOGÍA (Choose the language)

Los estudios se realizarán mediante cromatografía líquida utilizando fases móviles hidro-orgánicas. Se evaluarán distintas condiciones experimentales que puedan influir en la resolución enantiomérica. Los ensayos se llevarán a cabo con compuestos orgánicos quirales de uso común.

(Department stamp)