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QUÍMICOS DE GALICIA



Colexio Oficial de
Químicos de Galicia



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PORTUGUESA
DE QUÍMICA



XXVI ENCONTRO GALEGO PORTUGUÉS DE QUÍMICA
CONGRESO INTERNACIONAL



Abajando a ciencia e a tecnoloxía á sociedade, en la salud, el ambiente e a alimentación



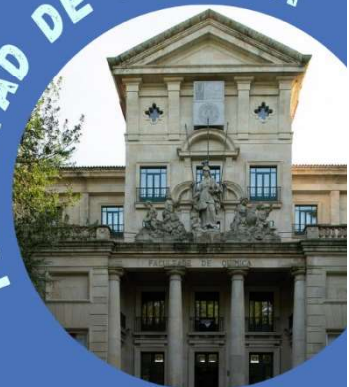
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EL CONGRESO

| DÍA | HORA | SALAS | | | | | |
|-----|------------------|------------------------|-------|-------|------|-------|--|
| | | PLENARIAS | A | B | C | D | |
| | | SALA A | | | | | |
| 18 | 9:00 | | QS37 | QA08 | NN09 | QO19 | |
| | 9:15 | | QS38 | QA09 | NN10 | QO20 | |
| | 9:30 | | QS39 | QA03 | NN11 | QO21 | |
| | 9:45 | | QS40 | QA10 | NN12 | QO22 | |
| | 10:00 | | QS41 | QA11 | NN13 | QO23 | |
| | 10:15 | | QS42 | QA12 | NN14 | QO24 | |
| | PAUSA: 5 minutos | | | | | | |
| | 10:35 | | QS43 | QA13 | NN15 | BB01 | |
| | 10:50 | | QS44 | QA14 | NN16 | BB02 | |
| | 11:05 | | QS45 | QA15 | NN17 | BB03 | |
| | 11:20 | | QS46 | QA16 | NN18 | BB04 | |
| | 11:35 | | QS47 | QA17 | QT01 | BB05 | |
| | 11:50 | | QS48 | QA18 | QT03 | IND01 | |
| | 12:05-12:45 | COFFEE BREAK + POSTERS | | | | | |
| | 12:45-13:30 | CP4 | | | | | |
| | 13:30-15:00 | COMIDA-ALMUERZO | | | | | |
| | 15:00 | | QS49 | QA20 | QF01 | IND02 | |
| | 15:15 | | EDU01 | QA21 | QF02 | IND03 | |
| | 15:30 | | | QA22 | QF03 | IND04 | |
| | 15:45 | | | QA23 | QF04 | IND05 | |
| | 16:00 | | QI01 | QA24 | QF05 | IND06 | |
| | 16:15 | | QI02 | POL01 | QF06 | IND07 | |
| | PAUSA: 5 minutos | | | | | | |
| | 16:35 | | QI03 | QT02 | QF07 | IND08 | |
| | 16:50 | | QI04 | POL02 | QF08 | IND09 | |
| | 17:05 | | QI05 | QT04 | QF09 | IND10 | |
| | 17:20 | | QI06 | QT05 | QF10 | | |
| | 17:35 | | QI07 | QT06 | QF11 | IND12 | |
| | 17:50 | | QI08 | QT07 | QF12 | IND13 | |
| | PAUSA: 5 minutos | | | | | | |
| | 18:10 | CLAUSURA | | | | | |

RELACIÓN DE COMUNICACIONES

- EDU02 Tres tristes tigres comen mijo en un mijal.
EDU03 Y nos dieron las diez y las once, las yodo, la una, las dos y las tres.

Póster/Panel

- EDU04 Determinación de la dureza en las aguas. Ablandamiento de aguas por intercambio iónico.
EDU05 Práctica virtual de Laboratorio de Química: Determinación del calor de combustión y de formación de la aspirina (ácido acetilsalicílico).
EDU06 Caso Práctico: evaluación de la corrosión en armaduras de hormigón por medio de la medición del campo potencial.

QUÍMICA INDUSTRIAL E INGENIERÍA QUÍMICA

Oral

- IND01 Captura de CO₂ con carbones preparados a partir de serrín de pino (*Pinus radiata*)
IND02 Study and modeling of the equilibrium and dynamics of post-combustion CO₂ adsorption using carbon-based adsorbents.
IND03 Estudio físico-químico de sistemas de Triton X-102 + sales.
IND04 Viscosidad dinámica de sistemas binarios n-octano +1-alcohol.
IND05 Obtainment of different biosurfactant extracts from corn steep liquor depending on the extraction process.
IND06 Biodiesel production from residual cooking oils and its purification by adsorption processes based on adsorbents of natural origin.
IND07 Study of biodiesel production from waste cooking oil by ethyl transesterification and its purification using adsorption processes.
IND08 Identification of gramicidin in biosurfactant extract by ESI-MS: a preliminary study.
IND09 Antioxidant activity of biosurfactant extracts obtained from corn steep liquor.
IND10 Optimization of the hydrothermal extraction of antioxidants from *Opuntia ficus-indica*.
IND11 Valorization of liquid and solid extracts from *Undaria pinnatifida* using microwave assisted extraction.
IND12 Characterization of the Mediterranean green algae *Caulerpa prolifera* and investigation of its antioxidant capacity using green extraction assisted by microwaves.
IND13 Modeling and simulation of biomass pyrolysis processes.

Póster/Panel

Study of biodiesel production from waste cooking oil by ethyl transesterification and its purification using adsorption processes

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In the year 2020, global biodiesel production reached 46.45 million tons, with biodiesel from waste cooking oils (WCO) constituting approximately 10% of this total, with Europe accounting for approximately 33% and Brazil 12% of global production [1]. The cost of conventional biodiesel production is higher than the production of diesel from petroleum, since it is produced mainly from high quality virgin oils, it is estimated that 70 to 80% of the total cost of biodiesel production is associated with the cost of the raw materials [2]. With this perspective, biodiesel production from WCO has become an economic opportunity and an environmental strategy to help address global renewable energy challenges and contribute to a sustainable society [3]. Oil with hours of frying at high temperatures results in the loss of its edible properties and nutritional value, the disposal of used cooking oil remains an issue due to its environmental and human health threats [4]. In this scenario, the collection and destination of these oils for the production of a value-added and environmentally friendly biofuel presents itself as an opportunity to be investigated. Adsorption and ion exchange are the most commonly used affinity separation processes in biodiesel purification worldwide, these methods are also known as dry washing methods. In these processes, an appropriate adsorbent is used to selectively remove certain impurities from the liquid phase onto its surface. Dry cleaning offers several advantages, including simple integration into an existing plant, shorter purification time, lower water consumption and lower effluent generation.

In this work, an optimization of the production of biodiesel from a WCO by the ethylic route is sought, through its characterization and purification by adsorption using natural adsorbents, focusing on the removal of glycerol. In a preliminary analysis, some required conditions for the production were found, such as: minimum catalyst load established at 0.9% (wt/wt), and better biodiesel yields obtained at lower temperatures. A response surface methodology was constructed using a Box-Behnken design with 3 parameters: alcohol/oil molar ratio, reaction temperature and catalyst load, and one response: biodiesel yield. The results indicate greater yields at lower temperatures and higher alcohol/oil molar ratios. In sequence, using olive stones as a natural carbon source, characterization of adsorbent materials based in the crude olive stone sample and in activated carbons produced from it by different chemical and physical activations were carried out, with the objective of selecting adsorbents for further tests of adsorption with the main goal of removing glycerol from the biodiesel produced.

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- [3] C. Chen, A. Chitose, M. Kusadokoro, H. Nie, W. Xu, F. Yang, S. Yang, *Energy Reports*, 7 (2021) 4022–4034.
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