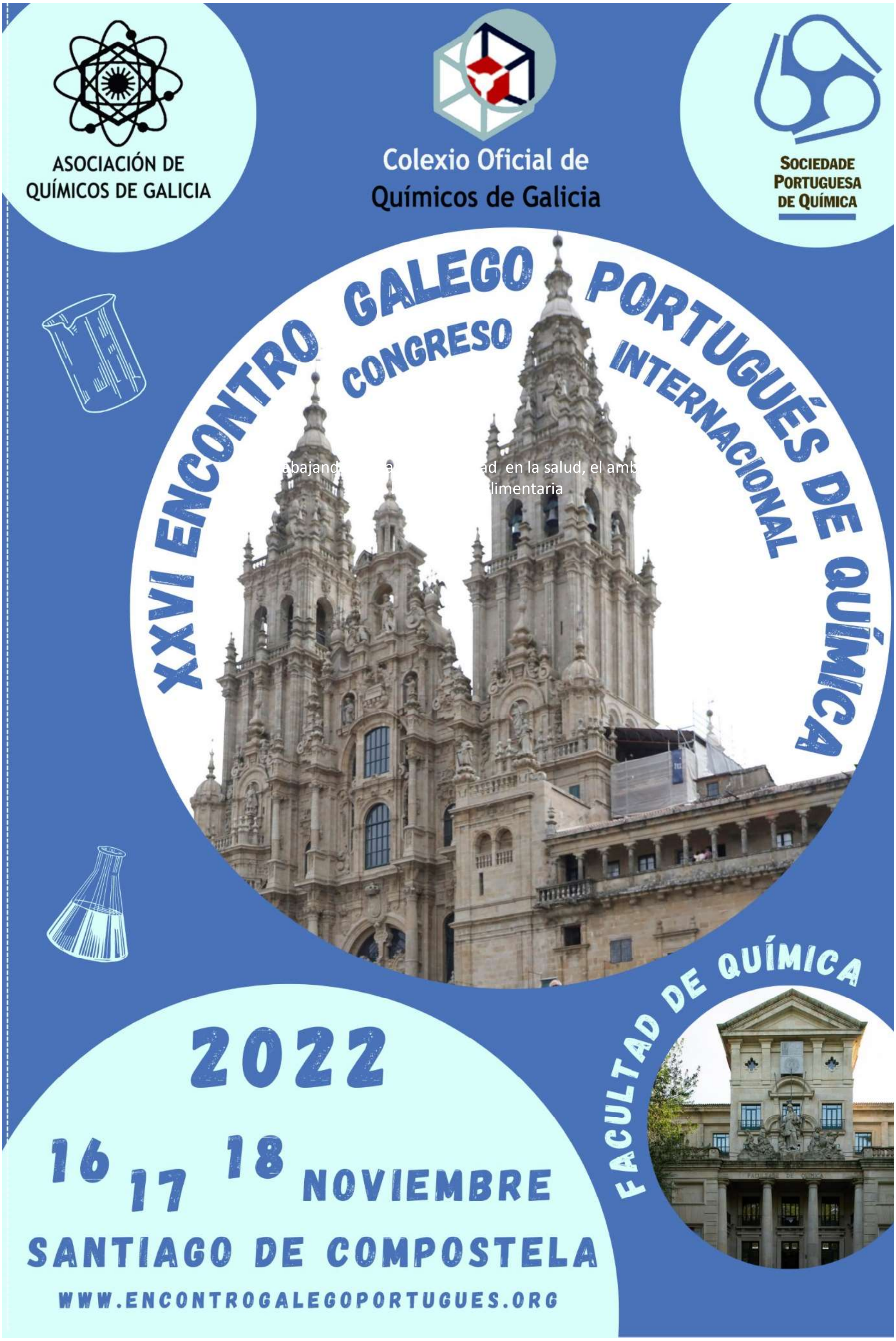
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DÍA	HORA	SALAS				
		PLENARIAS SALA A	A	B	C	D
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	9:15		QS38	QA09	NN10	QO20
	9:30		QS39	QA03	NN11	QO21
	9:45		QS40	QA10	NN12	QO22
	10:00		QS41	QA11	NN13	QO23
	10:15		QS42	QA12	NN14	QO24
	PAUSA: 5 minutos					
	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
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	12:45-13:30	CP4				
	13:30-15:00	COMIDA-ALMUERZO				
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	15:30			QA22	QF03	IND04
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	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				

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 CO_2 con carbones preparados a partir de serrín de pino (*Pinus radiata*)

IND02 Study and modeling of the equilibrium and dynamics of post-combustion CO_2 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

Modeling and simulation of biomass pyrolysis processes

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Pyrolysis is a thermochemical process where organic matter is decomposed into gaseous products, oils constituted by tars, and non-volatilized residual char, through the elevation of the system temperature (400-800°C), in the absence of oxygen. This process can be modeled and simulated for deeper analysis and optimization. However, since the process is clearly influenced by a high number of operational parameters such as temperature, pressure and dozens of simultaneous parallel reactions, its simulation becomes significantly complex. Thus, the aim of this work is the modeling of a more robust pyrolysis process, considering more components present in tar composition, as well as the evaluation of pyrolysis products distribution under different pyrolysis temperatures: 400, 500 and 600°C. Hence, a model was developed based on second-order equations [1], using pyrolysis temperature as the main variable, achieving as result the yield of three macro components: gases, tar and residual char. The gas fraction is composed by: carbon monoxide (CO), carbon dioxide (CO_2), methane (CH_4) and hydrogen (H_2); tar fraction is constituted by: benzene (C_6H_6), toluene (C_7H_8) and naphthalene ($C_{10}H_8$), and the residual char is accompanied by ash in its composition. Simulation was implemented using biomass data based on the composition of olive residues applying the chemical process simulation software UniSim Design. The modeling first step is biomass decomposition in a conversion reactor, applying the yields obtained using the previous equations, while the second step is the decomposition of residual char in a yield reactor, resulting in the elemental constituents: carbon ($C_{(s)}$), hydrogen gas (H_2), oxygen gas (O_2), nitrogen gas (N_2), solid sulfur ($S_{(s)}$), and ash.
It is possible to note that the pyrolysis model results (see Table 1), implemented with the Software UniSim Design, show, in general, compatibility with the results available in the literature [2, 3]. The model reveals low sensitivity for the yield results, when using different sources of biomass with similar compositions, possibly due to the use of the temperature as the main variable.

Table 1. Component mass and molar fraction after Pyrolysis, under different pyrolysis temperatures.

Component (%)	400°C		500°C		600°C	
	Mole	Mass	Mole	Mass	Mole	Mass
C_6H_7	2.09	8.14	1.96	8.09	1.50	7.39
C_6H_6	7.38	24.43	6.95	24.28	5.32	22.17
$C_{10}H_8$	1.50	8.14	1.41	8.09	1.08	7.39
$C_{(s)}$	37.13	18.90	30.39	16.32	22.50	14.41
CO	8.35	9.92	9.89	12.39	9.53	14.23
CO_2	8.85	16.50	8.61	16.94	7.74	18.16
H_2	24.89	2.12	31.61	2.84	43.39	4.67
CH_4	0.08	0.06	1.20	0.86	3.03	2.59

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