12º ENCONTRO NACIONAL

CROMA-TOGRAFIA

6 › 8 dez'22

Aveiro | Portugal

PROVISIORAL

universidade de aveiro

SOCIEDADE PORTUGUESA DE QUÍMICA

XIV WARPA

TÍTULO:

Livro de Resumos do 12º Encontro Nacional de Cromatografia & XIV WARPA

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December 6th

Rectorate Building
(Building 25 - UA campus map)

8h00	**Registration** Hall of the Rectorate Building	
	Auditório Renato Araújo	
9h00	**Opening session**	
9h15	PL1	
10h00	KN1	
	Auditório Renato Araújo	**Sala do Senado**
10h30	OC1	OC6
10h45	OC2	OC7
	11h00 – 11h30: Coffee break & Poster session Hall of the Rectorate Building	
11h30	OC3	OC8
11h45	OC4	OC9
12h00	OC5	OC10
12h15	Sponsor 1	
	12h45 – 14h15: Lunch break Hall of the Rectorate Building	
	Auditório Renato Araújo	
14h15	PL2	
15h00	KN2	
	Auditório Renato Araújo	**Sala do Senado**
15h30	OC11	OC14
15h45	OC12	OC15
16h00	OC13	OC16
16h15	Sponsor 2	Sponsor 3
	16h45 – 17h15: Coffee break & Poster session Hall of the Rectorate Building	
17h15	**Round table:** Chromatography: do the current developments respond to future challenges?	
18h30	**Welcome Reception: Port Wine and Ovos Moles de Aveiro degustation under a particular musical moment** Hall of the Rectorate Building	

December 7th

Department of Environment and Planning
(Building 7 - UA campus map)

8h00	**Registration** Entrance of the Department of Environment and Planning (Building 7 - UA campus map)
	Auditório Carlos Borrego
9h00	PL3
9h45	KN3
10h15	OC17
10h30	OC18
10h45	OC19
	11h00 – 11h45: Coffee break & Poster session Hall of the Rectorate Building
11h45	OC20
12h00	OC21
12h30	Sponsor 4
	12h45 – 14h15: Lunch break Hall of the Rectorate Building
	Auditório Carlos Borrego
	XIV WARPA *Recent advances on sample preparation*
14h15	Opening session and announcement of the award Janusz Pawliszyn medal
14h30	KN4
15h00	KN5
15h30	KN6
	16h00 – 16h30: Coffee break & Poster session Hall of the Rectorate Building
16h30	KN7
17h00	KN8
17h30	OC22
17h45	OC23
18h00	**Closing session of XIV WARPA**
18h00	**Meeting of the Chromatography Group members – SPQ** Auditório Carlos Borrego
20h30	**Gala Dinner with a special entertainment moment** Meliá Ria Hotel & Spa

December 8th

Rectorate Building
(Building 25 - UA campus map)

8h00	**Registration** Hall of the Rectorate Building	
	Auditório Renato Araújo	
9h00	PL4	
9h45	KN9	
	Auditório Renato Araújo	**Sala de Atos**
10h15	OC24	OC27
10h30	OC25	OC28
10h45	OC26	OC29
	11h00 – 11h30: Coffee break & Poster session Hall of the Rectorate Building	
11h30	FC01	FC06
11h35	FC02	FC07
11h40	FC03	FC08
11h45	FC04	FC09
11h50	FC05	FC10
11h55	Discussion on Flash Communications	Discussion on Flash Communications
12h10	Sponsor 5	Sponsor 6
	12h45 – 14h15: Lunch break Hall of the Rectorate Building	
	Auditório Renato Araújo	
14h15	PL5	
15h00	Sponsor 7	
	Auditório Renato Araújo	**Sala de Atos**
15h30	OC30	OC34
15h45	OC31	OC35
16h00	OC32	OC36
16h15	OC33	OC37
16h30	**Closing session and announcement of the award communications and the next 13ENC**	

P13 Removal of naproxen from water using adsorbents obtained from low-cost materials

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The continuous growth of world population together with the strong urbanization has triggered an increasing demand for freshwater which has resulted in a serious deterioration of water bodies[1]. Water pollution with pharmaceutical drugs is becoming a relevant problem. The concentration of non-steroidal anti-inflammatory drugs, estrogens, personal care products, among others, in waterways is reaching hazardous levels, posing a threat to the environment and human health. Moreover, conventional cleaning and degradation processes applied on wastewater treatment plants are inefficient to eliminate or remove these compounds. Adsorption is a treatment process considered as effective process used to remove micropollutants such as pharmaceutical drugs from wastewaters[2,3]. This work will present the main experimental results obtained for the removal of naproxen, a representative anti-inflammatory drug, from water by adsorption using activated carbon obtained from olive stone. From the raw material, four different types of activated carbon adsorbent were prepared and characterized. The equilibrium adsorption isotherms were measured using the batch method. The most significant adsorption parameters were optimized, such as the solution pH, mass of the adsorbent, contact time and temperature. The physicochemical characterization of the pyrolyzed material shows a considerable superficial area of 608 m^2/g when compared with other natural biomass-based materials. The adsorbent with the better performance allowed, using a contact time of 24 hr and a solution pH of 4.5, a removal efficiency of 100%. The Langmuir model was used to better described the adsorption behavior with the highest maximum adsorption capacity value of 35.2 mg naproxen/g adsorbent. The kinetics of the adsorption is well described by a pseudo-second order model.

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References

1. Arman et al.; Water 13 (**2021**) 3258.
2. Jose L. Diaz de Tuesta et al.; J. Environ. Chem. Eng., 9 (**2021**) 105004.
3. Quesada et al.; Chemosphere 222 (**2019**) 766-780.