

12º ENCONTRO NACIONAL

# CROMA- TOGRAFIA

6 › 8 dez'22

Aveiro | Portugal

*PROVISORAL*



**TÍTULO:**

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

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**SUPORTE:** Eletrónico

**FORMATO:** PDF / PDF/A

ISBN 978-989-8124-37-1



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## December 6<sup>th</sup>

### Rectorate Building (Building 25 - UA campus map)

8h00	Registration Hall of the Rectorate Building
9h00	Auditório Renato Araujo
9h15	Opening session PL1
10h00	KN1
10h30	Sala do Senado OC1
10h45	OC2
	11h00 – 11h30: Coffee break & Poster session Hall of the Rectorate Building
11h30	OC3
11h45	OC4
12h00	OC5
12h15	Sponsor 1
	12h45 – 14h15: Lunch break Hall of the Rectorate Building
	Auditório Renato Araujo
14h15	PL2
15h00	KN2
15h30	Sala do Senado OC14
15h45	OC15
16h00	OC16
16h15	Sponsor 2
	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 7<sup>th</sup>

### 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)
9h00	Auditório Carlos Borrego 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
	<b>XIV WARPA</b> <i>Recent advances on sample preparation</i>
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 Meiá Ria Hotel & Spa

## December 8<sup>th</sup>

### Rectorate Building (Building 25 - UA campus map)

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

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## 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<sup>1</sup>. 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<sup>2,3</sup>. 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<sup>2</sup>/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.

**Acknowledgements:** The authors are grateful to the Foundation for Science and Technology (FCT, Portugal) for financial support through national funds FCT/MCTES (PIDDAC) to CIMO (UIDB/00690/2020, UIDP/00690/2020 and EXPL2021CIMO\_05-REMPHARM) and SusTEC (LA/P/0007/2021).

### 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.