

CONFERENCE PROGRAM

**3rd INTERNATIONAL CONGRESS
Separative Techniques Facing the Challenges
of Sustainable Development**

**3ème CONGRES INTERNATIONAL
Les Techniques Séparatives Face aux Défis
du Développement Durable**



FRANCOFILT 2023

**10 - 12
May 2023
Fez - Morocco**



Organized by

Laboratory of Processes, Materials and Environment
Faculty of Science and Technology of Fez
Sidi Mohamed Ben Abdellah University
Moroccan Membrane and Desalination Society
Institute of Filtration and Separation Techniques

08 :30 - 09 :30	Registration of the participants	
09:30 – 10:15	OFFICIAL OPENING CEREMONY	
10:15 – 10:50	PL1 : Roger Ben Aïm, IFTS, France Comment réduire l’empreinte carbone et l’empreinte environnementale de l’osmose inverse, la technologie dominante en dessalement ?	
10:50 – 11:20	Coffee break / Stands visit	
	Plenary Room / Chairs: J. Toyir & M. Hafsi	
11:20 – 11:55	PL2 : Norednine Ghaffour, KAUST, Saudi Arabia Novel forward osmosis – membrane distillation (FO-MD) integrated system for produced water treatment	
11:55 – 12:30	PL3 : Selma Jariri, ONEE, Rabat, Morocco Le dessalement d’eau au Maroc : Une solution durable pour l’approvisionnement en eau potable	
12:30 – 14:30	Lunch	
	Room 1 / Topic 1 : Wastewater treatment and reuse. Circular economy and new paradigms: Zero liquid discharge and low carbon footprint for industrial effluents. Chairs : M. Ouammou & R. Ben Amar	Room 2 / Topic 2 : Desalination, membrane technology, climate change and sustainable development Chairs : A. Doucouré & M. Bouhria
14:30 – 14:55	KN1 : Courfia Kéba Diawara, UZ, Ziguinchor, Senegal Performance et intégration des membranes en Afrique de l’ouest pour l’accès à l’eau potable : apport des universités ou centres de formation et de recherche	KN3 : Sudip Chakraborty, Calabria university, Italy Plasmonic Nanomaterials for Environmental Filtrations
14:55 – 15:20	KN2 : Marc Heran, University of Montpellier, France Impact of treated wastewater on soil bacterial communities	KN4 : André Deratani, Université of Montpellier France Renewable energy-powered membrane technology
15:20 – 15:35	O1 : Soumana Gagara, AMSIC – Niger Wastewater Management Improvement in the UNAMID Headquarters in Central Darfur, Zalingei, Sudan	O4 : Saidou Nourou DIOP, University Assane SECK of Ziguinchor Senegal Application des procédés membranaires pour le traitement des eaux saumâtres en milieu rural au Sénégal
15:35 – 15:50	O2 : Pascal Ginisty, IFTS France Coagulation / Flocculation of industrial and urban sludges and wastewaters: challenges and perspectives	O5 : Sana Gassara, Oneka Technologies, Sherbrooke, Canada Ocean Wave-Powered Stand-Alone Oneka Buoy for Sustainable Desalination Solution
15:50 – 16:05	O3 : Hafida Ayyoub, Ibn Tofail University, Kenitra, Morocco Aerobic treatment of fish canning wastewater using a pilot-scale external membrane bioreactor	O6 : Mohamed Farah, Ibn Tofail University, Kenitra, Morocco Fouling investigation of ceramic ultrafiltration membranes : influence of transmembrane pressure
16:05 – 16:30	Coffee break / Poster session / Stands visit	

	<p>Room 1 / Topic 1 : Wastewater treatment and reuse. Circular economy and new paradigms: Zero liquid discharge and low carbon footprint for industrial effluents.</p> <p>Chairs : M. Nawdali & R. I. Peinador Davila</p>	<p>Room 2 / Topic 2 : Desalination, membrane technology, climate change and sustainable development</p> <p>Chairs : N. Tijani & J. Bennazha</p>
16:30 – 16:45	<p>O7 : Wiem Mezlini, University of Tunis El Manar, Tunisia Recent advances in photocatalytic application in industrial wastewater treatment: principle, latest advances, challenges and perspectives</p>	<p>O11 : Youssouf El Idrissi, ENSEM University Hassan II Casablanca Sélection d'une zone d'étude de dessalement des eaux saumâtres par des procédés hybrides</p>
16:45 – 17:00	<p>O8 : Roukaya Bouyaksass, Hassan II University of Casablanca, Morocco Leachate anaerobic treatment : the case of Mohammedia-Benslimane landfill</p>	<p>O12 : Mohamed Idrisse, Ibn Tofail University, Kenitra, Morocco Contribution to the study of fluoride ion transfer in nanofiltration and reverse osmosis membranes</p>
17:00 – 17:15	<p>O9 : Rida El-Bardai, Ibn Tofail University, Kenitra, Morocco Development of a novel glasses based on phosphate and its application as a promising adsorbent for crystal violet dye removal</p>	<p>O13 : Addar Fatima Zahra Université Ibn Tofail, Kenitra, Maroc Comparison of response surface method and artificial neural network in predicting fluoride removal by nanofiltration</p>
17:15 – 17:30	<p>O10 : Doha Elmachtani idrissi, Hassan II University of Casablanca, Morocco Fabrication of low-cost kaolinite/perlite membrane for microfiltration of dairy wastewater</p>	<p>O14 : Bassma El Gouch, University Sidi Mohamed Ben Abdellah, Fez, Morocco Characterization of water-soluble ions of PM2.5 in Kenitra, Morocco</p>
<p>Day 2 : Thursday 11 May 2023</p>		
	<p>Plenary Room / Topic 3 : Water quality and environmental protection : Role of separation techniques and membranes ; micropollutants and emerging pollutants</p> <p>Chairs : M. Taky & S. Y. Alami</p>	
09:00 – 09:35	<p>PL4 : Anthony Szymczyk, Université de Rennes, France Improving our understanding of organic solvent nanofiltration through molecular simulation</p>	
09:35 – 09:50	<p>O15 : Mustapha Tahaikt, Ibn Tofail University, Kenitra, Morocco Fluoride removal by electrodialysis: Competition of fluoride ions with other anions through ACS membrane</p>	
09:50 – 10:05	<p>O16 : René I. Peinador Davila, IFTS, France Natural Generation, Characterization and Membrane Filtration of Nanoplastics in water</p>	
10:05 – 10:20	<p>O17 : ADLANE Sanaa, Hassan II University of Casablanca, Morocco Preparation of low-cost ultrafiltration membrane made from purified pyrophyllite</p>	
10:20 – 10:35	<p>O18 : Mohamed Chiban, Ibn Zohr University, Agadir Kinetic, equilibrium and thermodynamic studies for Chrome (VI) removal by magnesium aluminum layered double hydroxides (MgAl-LDH), synthesized by urea hydrolysis method</p>	
10:35 – 10:50	<p>O19 : Lachquer Farah, University Sidi Mohamed Ben Abdellah, Fez, Morocco Purification of Drinking Water Using Highly Selective Catalytic Reduction of Nitrates into Nitrogen over Keggin-Type Polyoxometalates Materials</p>	
10:50 – 11:20	<p>Coffee break / Poster session / Stands visit</p>	

<p>Plenary Room / Topic 3 : Water quality and environmental protection : Role of separation techniques and membranes ; micropollutants and emerging pollutants</p> <p>Chairs : N. Ghaffour & A. Dératani</p>	
11:20 – 11:35	<p>O20 : Doucouré Abdoulaye, Virginia, USA Growing trend for advanced liquid filtration capabilities in cleanroom facilities</p>
11:35 – 11:50	<p>O21 : Sakina BELHAMIDI, Ibn Tofail University, Kenitra, Morocco Anaerobic digestion of vinasse derived from ethanol manufacturing using a continuous stirred tank reactor pilot plant</p>
11:50 – 12:05	<p>O22 : Tarik Eljaddi, IFTS, France Design and validation of a locally assembled sand filter to remove iron and manganese from drinking water in Mali</p>
12:05 – 12:20	<p>O23 : Elazhar Fatima, Ibn Tofail University, Kenitra, Morocco Comparison of diverse direct and hybrid membrane processes for nitrate removal from brackish water</p>
12:20 – 12:35	<p>O24 : BOULJOIHEL Bader, Hassan II University of Casablanca, Morocco Elaboration de nouveaux catalyseurs hybrides à base d'un alliage Ni-Cu/Polymère conjugué pour le suivi de la réaction d'évolution de l'hydrogène</p>
12:35 – 14:00	<p>Lunch</p>
<p>Room 1 / Topic 3 : Water quality and environmental protection : Role of separation techniques and membranes ; micropollutants and emerging pollutants</p> <p>Chairs : M. Elrhazi & T. Eljaddi</p>	
<p>Room 2 / Topic 4 : Simultaneous reduction of water-energy footprints in the current economic context: Separative and membrane techniques for sustainable processes in the Agri-food, Pharmaceutical and Biotechnology industries</p> <p>Chairs : A. Aaddane & M. Heran</p>	
14:00 – 14:25	<p>KN5 : Raja Ben Amar, Université de Sfax, Tunisia Study of performances of low-cost ceramic membranes for oily wastewater treatment</p>
14:25 – 14:40	<p>O25 : Fouad SINAN, Ibn Zohr University, Agadir Green membrane to remove Cd²⁺ from aqueous solutions</p>
14:40 – 14:55	<p>O26 : Dagher Ghadi, Université de Poitiers, France Prediction of multi-cycle fouling of hollow fiber ultrafiltration membranes using time series analysis</p>
14:55 – 15:10	<p>O27 : Hassna Laalaoua, University Sidi Mohamed Ben Abdellah, Fez, Morocco A Comprehensive study of nitrate and ammonium removal from water by membrane technology</p>
14:00 – 14:25	<p>KN6 : Pierre-Yves Pontalier, ENSIACET, Toulouse, France Microalgae fractionation</p>
14:25 – 14:40	<p>O31 : Omar DOUGHMI, IbnTofail University, Kenitra, Morocco Oak acorn treated with citric acid and its application as biosorbent for the removal of crystal violet dye in aqueous solutions</p>
14:40 – 14:55	<p>O32 : Pascal Ginisty, IFTS France The role of filtration and other separative techniques in plant extraction: new challenges, new techniques to meet industrial needs</p>
14:55 – 15:10	<p>O33 : Emna Selmane Bel Hadj Hmida, IPEIEM, Tunis, Tunisia Zéro gap electrolysis used to produce bleach</p>

15:10 – 15:25	O28 : Jabkhiro Hajar, Hassan I University of Settat, Morocco Application of Mg(Al)O mixed metal oxides (MMO) nanoparticles in the preparation of sustainable mixed matrix membranes for water treatment	O34 : Amri Nabil, University Sidi Mohamed Ben Abdellah, Fez, Morocco Etude électrochimique des propriétés inhibitrices de la corrosion du colorant organique : Jaune de Métanile sur l'acier XC38 en milieu acide chlorhydrique 1M
15:25 – 15:40	O29 : Moumni Boutaina, University Sidi Mohamed Ben Abdellah, Fez, Morocco Removal of Malachite Green (MG) using low cost adsorbent: Isotherm, Kinetics and Thermodynamic Studies	O35 : Soukaina El Abbadi, Moulay Ismail university, Meknes, Morocco Efficiency of aluminum pillared clay for the removal of phenol from aqueous solution: Characterization, kinetics and adsorption isotherm
15:40 – 15:55	O30 : Hazra Mohamed, Ibn Tofail University, Kenitra, Morocco Removal of ammonium ions for drinking water by electrodialysis: Feasibility and optimization	O36 : Zraraa Kenza, University Sidi Mohamed Ben Abdellah, Fez, Morocco Extraction and Characterization of Antioxidant properties of Mucilage from Flax (Linum usitatissimum)
15:55 – 16:25	Coffee break / Poster session / Stands visit	
	Room 1 / Topic 3 : Water quality and environmental protection : Role of separation techniques and membranes ; micropollutants and emerging pollutants Chairs : P-Y. Pontalier & B. Achiou	Room 2 / Topic 4 : Simultaneous reduction of water-energy footprints in the current economic context: Separative and membrane techniques for sustainable processes in the Agri-food, Pharmaceutical and Biotechnology industries Chairs : C.K. Diawara & P. Ginisty
16:25 – 16:40	O37 : Hamou Moussout, Ibn Tofail University, Kenitra, Morocco Étude de la cinétique de dégradation thermique des coquilles de noix et leur application dans la rétention de l'orange de méthyle	O42 : Aaddane Abdellah, Hassan II University of Casablanca, Morocco Development of ultrafiltration ceramic membranes based on purified natural clays
16:40 – 16:55	O38 : Rajaa Mouratib, Chouaïb Doukkali University, El Jadida, Morocco Elaboration of low-cost ceramic membrane from physicochemical water treatment sludge and its application to wastewater filtration	O44 : El Ouadrhiri Faïçal, University Sidi Mohamed Ben Abdellah, Fez, Morocco N, P co-doped carbocatalyst from olive pomace obtained by catalytic hydrothermal carbonization for persulfate-based advanced oxidation process
16:55 – 17:10	O39 : Jihan FAOUZI, University Sidi Mohamed Ben Abdellah, Fez, Morocco Vertical transfer of bacteriological and parasitological pollutants from irrigation water to soil eggplant and cardoon	O45 : Laila Lahrizi, University Sidi Mohamed Ben Abdellah, Fez, Morocco Ethnobotanical study on the use of the plant "Ajuga lva" by the Moroccan populations
17:10 – 17:25	O40 : Oumaima Beroigui, University Sidi Mohamed Ben Abdellah, Fez, Morocco Streptomyces as vital additives for solid waste composting	O46 : Boulahfa Hicham, METITO OVERSEAS LTD , Morocco MEMBRANE FOULING CHARACTERIZATION OF A FULL-SCALE BRACKISH WATER REVERSE OSMOSIS DESALINATION PLANT IN MOROCCO: MEMBRANE AUTOPSY
17:25 – 17:40	O41 : Sam Simanye, University of Johannesburg, South Africa A piezoelectric electrospun nanofiber mat (PVDF/ Kaolin) for the degradation of methylene blue in water	
20:00 – 23:00	GALA DINNER, Hôtel Marriott Jnan Palace	

Day 3 : Friday 12 May 2023

	<p>Plenary Room / Topic 1 : Wastewater treatment and reuse. Circular economy and new paradigms: Zero liquid discharge and low carbon footprint for industrial effluents</p> <p>Chairs : V. Ebery & H. Zaitan</p>
09:00 – 09:35	<p>PL5 : Mohamed Taky, Université Ibn Tofail, Kanitra, Maroc Wastewater Treatment and Reuse in Morocco: Status, Perspectives and Challenges</p>
09:35 – 09:50	<p>O47 : Dounia Beqqour, Hassan II University of Casablanca, Morocco Preparation of a composite membrane made of PoPD/PVA ultrafiltration layer on ceramic pozzolan/micronized phosphate support for removal of Congo red dye</p>
09:50 – 10:05	<p>O48 : Zahira CHAKIR, Ecole Hassania des Travaux Publics, Casablanca, Morocco Traitement biologique membranaire RBM et performances de la station de traitement des eaux usées de Mediouna</p>
10:05 – 10:20	<p>O49 : Amadou Lamine Diouf, University Assane SECK of Ziguinchor Senegal, Elaboration and characterization of activated carbons from "saba sumensis" shell collected Ziguinchor devoted to the treatment of waste water from health facilities</p>
10:20 – 10:35	<p>O50 : Salaheddine Elmoutez, M6PU, Ben Guerir Morocco Performance of a ceramic MBR pilot plant treating Municipal wastewater subject to gradual salinity increase: water quality and fouling behavior</p>
10:35 – 10:50	<p>O51 : Sarra BEN SALAH, Faculty of science of Sfax, Tunisia Treatment of dye-containing wastewater from textile industries using hybrid treatment integrating membrane technology</p>
10:50 – 11:05	<p>O52 : Farah Lachquer, University Sidi Mohamed Ben Abdellah, Fez, Morocco Electrocatalytic Removal of Carbon from Wastewater in a Highly Effective Biocell Using Kegging-Type Heteropoly Salts Based Electrodes</p>
11:05 – 11:45	<p>Coffee break / Poster session / Stands visit</p>
11:45 – 12:45	<p>Award of prizes for the best oral and poster</p> <p>Closing ceremony</p>
12:45 – 14:30	<p>Lunch</p>

Liste of posters

P1	Dabagh Abdelkader, Ibn Zohr University, Agadir, Morocco Preparation and characterization of biomaterial for the adsorption of cationic dye: kinetic, isotherm and thermodynamic
P2	Majdoub Ali, University Sidi Mohamed Ben Abdellah, Fez, Morocco Self-supporting g-C ₃ N ₄ /CuO on polyester fabric as "Dip-Catalyst" for synergistic 4-nitrophenol Hydrogenation
P3	Ben Ali Mona, University Sidi Mohamed Ben Abdellah, Fez, Morocco Enhancing the selective catalytic oxidation of lignocellulosic biomass to formic acid Using Reusable Calcined Mg/Al Hydrotalcite as a Catalyst in a green solvent
P4	Lahrizi Laila, University Sidi Mohamed Ben Abdellah, Fez, Morocco Contribution to a phytochemical study of aqueous extracts from the aerial part of <i>Ajuga reptans</i>
P5	Zraraa Kenza, University Sidi Mohamed Ben Abdellah, Fez, Morocco Potential of Flax (<i>Linum usitatissimum</i> L.) for ecological building materials
P6	Bellouk Hamza, University Sidi Mohamed Ben Abdellah, Fez, Morocco Optimization Of Sonophoto-Fenton Process Operating Conditions For The Treatment Of The Landfill Leachate Of Fez City (Morocco) And Contact Test With <i>Medicago sativa</i> To Assess The Phytotoxicity
P7	Beroigui Oumaima, University Sidi Mohamed Ben Abdellah, Fez, Morocco Characterization and selection of soil actinomycetes to improve composting process
P8	Attia Afef, University of Sfax, Tunisia Surface modification of zeolite microfiltration membrane: characterization and application
P9	Attia Afef, University of Sfax, Tunisia Synthesis and characterization of Nano-hybrid materials based on clay /PEI/ ZnO for wastewater treatment
P10	Tahiri Ayoub, Moulay Ismail university, Meknes, Morocco Adsorption Process Of The Eriochrome Black T Dye Onto X Type Zeolite : Kinetic And Thermodynamic Studies
P11	EL Allouche Yassine, University Sidi Mohamed Ben Abdellah, Fez, Morocco Molecular Modeling for new Drug Discovery
P12	Assouani Abdallah, Ibn Zohr University, Agadir, Morocco Contribution à l'étude des sources des nitrates présentes dans les ressources en eau souterraine de certaines communes rurales de l'Anti-Atlas/ Etude de cas NIHIT

P13	Sakout Youssef, University Sidi Mohamed Ben Abdellah, Fez, Morocco Structural, optical and dielectric study of hydrothermally synthesized $Pb_{1-x}Ba_xTiO_3$ ($0.1 \leq x \leq 0.9$) perovskite materials
P14	Lahrar El Houcine, University Sidi Mohamed Ben Abdellah, Fez, Morocco Structural, optical, electrocaloric, and energy storage properties of $Ba_{0.85}Ca_{0.15}Zr_{0.1}Ti_{0.9}O_3$ synthesized by sol-gel method
P15	El Ghzizel Soufiane, Ibn Tofail University, Kenitra, Morocco Fouling study of a nanofiltration membrane of a decentralized demineralization plant: Characterization and modeling
P16	Fahmi El Kahmmar, Ibn Tofail University, Kenitra, Morocco Textiles effluents depollution using adsorption on natural clay of Fes region
P17	Zeggar Hajar, Ibn Tofail University, Kenitra, Morocco Modeling of nitrate ion transfer in nanofiltration and reverse osmosis membranes
P18	Eljaddi Tarik, IFTS, France Contribution of two methods (in-situ and ex-situ) for detecting membrane wetting in membrane distillation for desalination
P19	Ouammou Mohamed, Hassan II University of Casablanca, Morocco Low-cost polysulfone/polystyrene ultrafiltration membrane with efficient azoic dyes removal and excellent antifouling performance for colored wastewater
P20	Alami Younssi Saâd, Hassan II University of Casablanca, Morocco Effective turning fly ash waste into Na-P1 zeolite and its application on the adsorption of Chromium VI
P21	Jellab Mina, Hassan II University of Casablanca, Morocco Manufacturing of new ceramic nano-apatite membrane supported on phosphate/kaolinite support for treatment textile wastewater
P22	Ounouss Ibrahim, Hassan II University of Casablanca, Morocco Valorization of Moroccan geomaterials in the manufacturing of low-cost ceramic membranes for the treatment of industrial wastewaters.
P23	Bouhria Mohamed, Hassan II University of Casablanca, Morocco Development and characterization of a low-cost Glymo-GO layer coated on kaolinite support. Application for waste treatment
P24	Achiou Brahim, Hassan II University of Casablanca, Morocco Fabrication of low-cost composite MoS_2/PVA membrane supported on pozzolan substrate for effective removal of soluble dyes
P26	Benhaiba Saad, Hassan II University of Casablanca, Morocco Détection simple et rapide des ions nitrates par voie électrochimique en utilisant un film de poly 1,8 diaminonaphtalène et d'oxyde de cuivre
P27	Ghadhi Ahmed, ENSEM, Hassan II University of Casablanca, Morocco Performance Simulation of a SWRO System Equipped with two Energy Recovery Devices
P28	Naanaai Lhoucine, University Sidi Mohamed Ben Abdellah, Fez, Morocco Application des techniques computationnelles dans le domaine de la conception de médicaments

P29	El Rhabori Said, University Sidi Mohamed Ben Abdellah, Fez, Morocco Discovery of new anti-cancer drugs using green biochemistry approach
P30	Lhassani Abdelhadi, University Sidi Mohamed Ben Abdellah, Fez, Morocco Desalination using membrane technology: Application to the production of drinking water
P31	Mazigh Nouhaila, Hassan II University of Casablanca, Morocco Assessing surface water quality in drinking water supply and irrigation of el malleh dam reservoir and identification of pollution sources
P32	Ghoumit Asmae, University Sidi Mohamed Ben Abdellah, Fez, Morocco Fabrication, Characterization and Adsorption Performance of a novel Polyniline@SAPO34 composite towards Orange G dye removal
P33	Moukhliiss Mohammed, Hassan II University of Casablanca, Morocco Assessing hydrological modeling in a Mediterranean Watershed using the SWAT model
P34	Ezzahi Amine, Hassan II University of Casablanca, Morocco Elaboration and characterization of novel tubular microfiltration ceramic membranes made from Moroccan geomaterials
P35	Ouzbair Mohamed, Ibn Tofail University, Kenitra, Morocco Pretreatment of vinasses by coagulation-flocculation : comparison and optimization using response surface methodology
P36	El Rhazi Mama, Hassan II University of Casablanca, Morocco Synthesis of new class of materials for sensing application or Direct Alcohol Fuel cell
P37	Chakir Zahira, Ecole Hassania des Travaux Publics, Casablanca, Morocco Wastewater reuse through Soil Aquifer Treatment (SAT): regulations and key elements for feasibility assessment
P38	Bennazha Jamal, Hassan II University of Casablanca, Morocco Novel polypyrrole/zirconium tubular membrane developed for efficient congo red dye rejection and salts desalination
P39	Lalia Khadija, Ibn Tofail University, Kenitra, Morocco Performance evaluation of nanofiltration membranes for dye removal of synthetic water
P40	Ait Ichou Abdeljalil, Ibn Zohr University, Agadir Synthetic nanomaterial Zn ₂ [FeAl]-CO ₃ layered double hydroxide for removal of heavy metals : characterization of nanomaterial and adsorption study of Cu(II) and Pb(II)

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