



LABORATORY OF SEPARATION PROCESSES



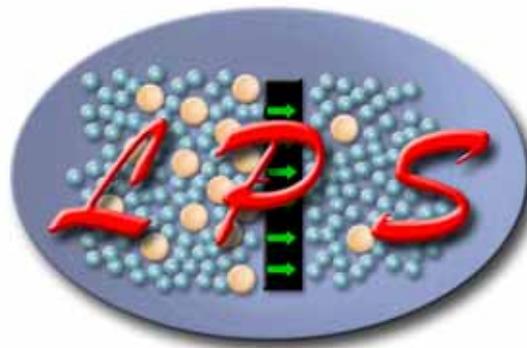
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LABORATORY OF SEPARATION PROCESSES

★ Researchers

- Permanent researchers : 12
- Students and non permanent researchers : 15

★ Researchers Teams

	Team	Responsible	permanent Members
Team 1	Membrane Separation Processes	Mohamed Taky	Zakia Amor Fatima Elhannouni Mohamed Taky
Team 2	Chemical Physic of Polyphasic Systems	Mahacine Elamrani	Fathallah Tiyal Azzeddine Elmidaoui Mahacine Elamrani
Team 3	Environment and Applied Chemistry	Abelaziz Ramadane Kribii	Abderrahim Kribii Omar Benali Abelaziz Ramadane Kribii
Team 4	Analytical and Organic Chemistry for the environment	Khadija Chlihi	Khadija Chlihi Soumeya Ejjiyar Hassan Oudda



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☆ MAJOR FIELDS Of INTERVENTION:

- **Environment**
- **Desalination**
- **Water and wastewater treatment.**
- **Treatment of industrial effluents (liquid waste).**
- **Recovery and valorisation of the raw materials**
- **Polymer Synthesis, Synthesis of Membranes**
- **Membrane processes**
- **Electrochemistry**
- **Biotechnology**
- **Hydrometallurgy**
- **Galvanoplasty**



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Research Topics developed (at the L.P.S) these five last years (2002-2007).

- **Wastewater treatment by coupling conventional processes and membranes processes (OCP).**
- **Fluoride removal in ground water by Reverse Osmosis, Nanofiltration, Electrodialysis (ONEP).**
- **Nitrate removal in ground waters by Nanofiltration and Electrodialysis (ONEP).**
- **Desalination of sea and brackish water by RO, NF, and Electrodialysis (OCP).**
- **Reduction of the melassigenic ions in canes juices by Nanofiltration and Electrodialysis (SURAC).**
- **Regeneration of the acids and the bases starting from salts by electrodialysis with bipolar membranes.**



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Research Topics developed (at the L.P.S) these five last years (2002-2007).

- **Demineralisation of beet solutions by Ion Exchange, Nanofiltration and Electrodialysis (SUNABEL)**
- **Characterization of the by-products of chlorination (THM) in the stations of water treatment (ONEP).**
- **Radiochemical Synthesis of the ion exchange membranes**
- **Physicochemical Characterization of the ion exchange membranes**
- **Recovery of heavy metals by membrane processes**
- **Purification of Phosphoric acid (OCP).**
- **Reduction of the volatile acidity in wine (TIA).**
- **Colloide Science: Solubilisation of some products in micelles, mixed micelles, vesicles and micro emulsions.**



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**Research Topics developed (at the L.P.S)
these five last years (2002-2007).**

- **Corrosion and bio-corrosion - Inhibition of corrosion**
- **Electrochemical Pesticide reduction**
- **Adsorption and catalyse applied to the environnemnt**
- **Structural study and valorisation of sedimentary organic matter.**
- **Organic synthesis and physico-chemical study of new specific molecuels.**
- **Study of propertie of solid-liquid interfaces**



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Research Topics to be started (at the L.P.S) in 2008

- **Valorisation of Lactoserum (ONA, Centrale Laitière)**
- **Wastewater treatment by Membrane Bioreactor (BRM) (ONEP).**
- **Pretreatment MF, UF, NF in RO desalination process.**
- **Preparation and Characterisation of meso/macro porous material for water treatment (CISC Spain, started in 2007)**
- **Treatment of Margins by coupling conventional and unconventional processes (ONEP)**
- **Milk debacterisation by MF (ONA, Centrale Laitière).....**



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☆ Partners

National : ONEP, OCP, Sugar Industries (SUNABEL; SURAC),
Wine Industries...

International : OTV (Veolea, France), Eurodia (TOKUYAMA
Corporation, Japan), TIA (France), EDS (Europe),
IDI (USA), CFM (France), Pall Corp (UK)....

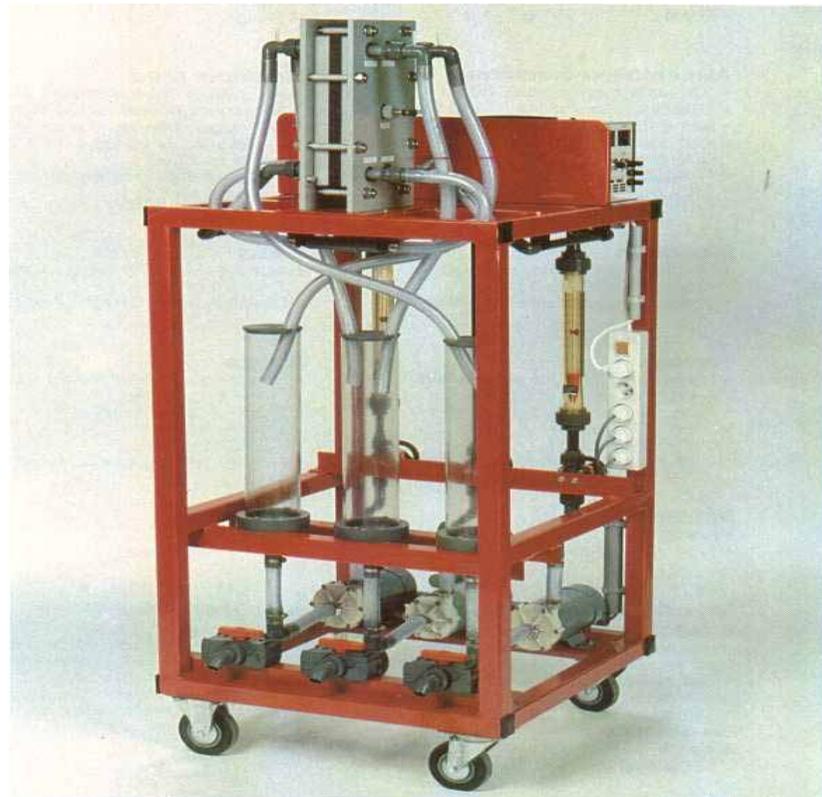
*Number of conventions and contracts these three last years: 10
(300.000 EURO)*



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★ Materials and Pilot plants

- **Bioreactor.**
- **Laboratory Electrodialysis Plant.**





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Materials and Pilot plants

➤ Industrial Electrodialysis Pilot Plant (1m³/h)





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Materials and Pilot plants

- **Industrial Reverse Osmosis Pilot Plant**
- **Industrial Nanofiltration Pilot Plant**





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★ **Materials and Pilot plants**

- **Industrial Ultrafiltration Pilot Plant**
- **Industrial Microfiltration Pilot Plant**





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Materials and Pilot plants

- **Eletrodialysis Cells**
- **Dialysis Cells**
- **Electro-electrodialysis Cells**
- **Ions Exchanges Membranes Tokuyama Corp. (Japan)**
- **Spiral Membranes (RO) Filmtec, Toray...**
- **Spiral NF Membranes, Filmtec, Toray...**
- **Tubular Ceramic Membranes (UF and MF).....**



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RESEARCH ACTIVITIES:

Statistical Elements:

- **Number of plenary conferences: 20**
- **Number of international publications: 115**
- **Number of international communications: 125**
- **Number of industrial contracts and international conventions: 28**