

Scientific Diasporas: From Brain Drain to Brain Gain

January the 12th and 13th in Geneva

Workshop organized by the “Sharing Knowledge Foundation”

Career Abroad and Reintegration in the Country of
Origin : Testimony of a Moroccan Researcher

Azzeddine ELMIDAQUI



Career Abroad and Reintegration in the Country of Origin : Testimony of a Moroccan Researcher

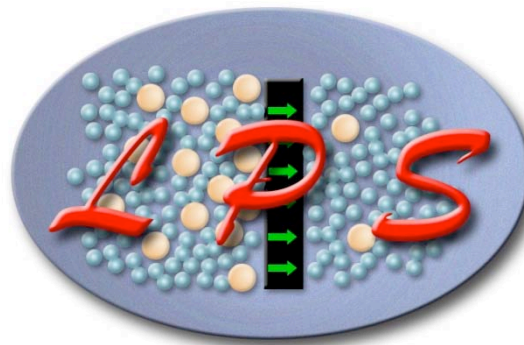
- **Azzeddine Elmidaoui/Claude GAVACH**
- **PROFESSION:** Professor. Laboratory of Separation Processes, Faculty of Sciences, University Ibn Tofail, Kénitra, Morocco.
- **DATES of BIRTH :** 1959, Morocco.
- **Study Period in Europe :** 1983-1991, 09 years in France (CNRS, Montpellier)
- **Date of Reintegration :** 1991, November



LABORATORY OF SEPARATION PROCESSES



1991-1992 : Tetouan/Paris/Rennes/Colorado/Berlin
1993 : Kénitra, Creation of LSP





LABORATORY OF SEPARATION PROCESSES

★ Researchers

- Permanent researchers : 01 in 1993 and 12 in 2009
- Students and non permanent researchers : 02 in 1992 and 26 in 2009

	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 (2002-2008).

- **Valorisation of Lactoserum and reduction of organic pollutants (ONA)**
- **Wastewater treatment by coupling conventional processes and unconventional 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 waters (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 (OCP).**



Research Strategy :

- **Research** : Applied, Academic and some times technologic
- **Partners** : National and International Industries, Associations, Universities (little), Others.
- **Choice of Teams** : national and regional concern
- **Base of Policy** : response to national priorities, respect of agreements and contracts, ensure interface between national and international industries, contribution to improve competition of national industries, **communication, development of large national and international human network.....**
- **Financing** : Industrial contracts and conventions (more easy to conduce), transfer of technologies, services (Wine..), official program (Avicennes, little, hard to conduce)



Research Topics developed (at the L.P.S) these five last years (2002-2008).

- **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**
- **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 (2002-2008).**

- **Preparation and Characterisation of meso/macro porous material for water treatment (CISC Spain, started in 2007)**
- **Corrosion and bio-corrosion - Inhibition of corrosion**
- **Electrochemical Pesticide reduction**
- **Adsorption and catalyse applied to the environment**
- **Structural study and valorisation of sedimentary organic matter.**
- **Organic synthesis and physico-chemical study of new specific molecules.**
- **Study of properties of solid-liquid interfaces**



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Research Topics to be started (at the L.P.S) in 2009

- **Valorisation of Lactoserum (ONA, Centrale Laitière)**
- **Wastewater treatment by Membrane Bioreactor (BRM) (ONEP).**
- **Pretreatment MF, UF, NF in RO desalination process.**
- **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, ONA (Centrale Laitière, Sugar Industries, SUNABEL; SURAC), Wine Industries...

International : Veolia (OTV, STI), Eurodia (TOKUYAMA Corporation, Japan), TIA (France), VATACH-WABAG, EDS (Europe), IDI (USA), CFM (France), Pall Corp (UK)....

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

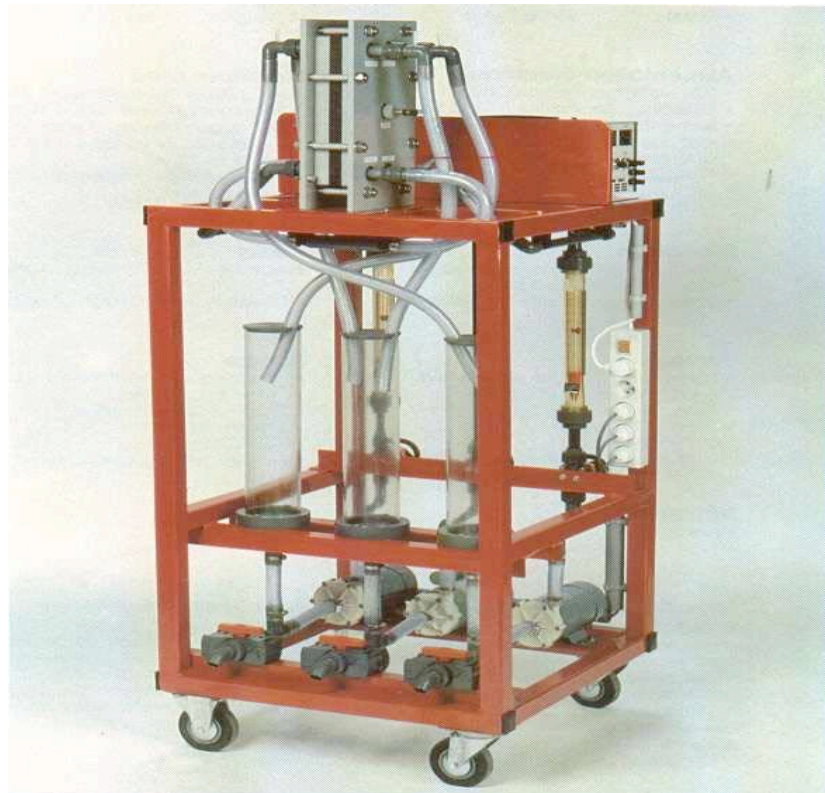


LABORATORY OF SEPARATION PROCESSES



★ Materials and Pilot plants

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





LABORATORY OF SEPARATION PROCESSES



★ 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**

