

Smain CHEMAT

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Nationality : Algerian



Business Strategy executive MBA and a PhD in Process Engineering with four years experience of project management in chemical research. Strong analytical and innovation skills with a track record of consulting achievements.

CAREER HISTORY

2007 – to date Dept. Chemical Engineering, University of Bath, UK : **Research Officer**,

- Participated within a multidisciplinary group to establish adaptive processing of natural feedstocks. Managed the development of environment-friendly extraction processes (HFC and organic solvents) for the recovery of anti-malarial drugs (Artemisinin) from herbs. Duties included scientific direction, execution of research program and supervision of postgraduate students. Innovated a new purification procedure of chemical substances directly from crude extracts and developed analytical procedures for target molecules.
- Participated on *Malaria Medecine Venture (MMV)* consortium efforts to establish a production chain of high value chemicals from plants containing anti-malarial drugs to promote social development welfare and increasing value for local farmers (Identification of processes & improvement at supply chain bottlenecks)
- Increased income through diverse consultancy projects for UK-based and foreign industrial partners:
 - Integrated new processes for digestion of ligno-cellulosic feedstocks (wood species) for the separation of lignin, hemi-cellulose (sugars) and cellulose as sources of speciality chemicals and renewable energy.
 - Scale-up of *Artemisinin* recovery process and its implementation in an existing pharmaceutical plant

2005 – 2007 CRAPC (Research Centre in Analytical Chemistry), Algeria : **Division Manager**

- Responsibilities included scientific direction, budget planning, staff training and writing project proposals. Managed a team of six researchers in projects related to food engineering processes and environmental chemistry. Innovated new processes, published scientific papers and secured 3 years government fund (DZD 3.2 millions) and a Quebec fund (CAD\$ 100k)
- Contributed to design the new organizational structure and participated on the implementation of HRM policies to support it (establishment of position duties and internal regulations)
- Launched an independent business unit dedicated to consulting services. Duties included attracting new clients, preparing bids/negotiation for projects, and ensuring quality assurance on processes:
 - managed a contract on risk assessment of PCBs on power generators, (*SONELGAZ*, Energy-Algeria)
 - Supervised quality control services for the analysis of pharmaceutical products, (*SAIDAL*, Pharma-Algeria)
- Self-driven initiatives: managed the design of posters and headed the group for two national exhibitions

2001 – 2005 **Research Scientist**, Undertook my PhD at the Research Centre in Analytical Chemistry in extraction techniques of chemical substances from biological (herbs) and environmental matrices (air,water,soil)

2000 Adecor (Paint additives & Thinners), Algeria: **Production & Innovation Manager**,

- Duties included the supervision of production operations outputs to meet quality control standards.
- Developed a new additive for paint drying (formulation to commercialization).

EDUCATION

2008 –March 2010 **Executive MBA**, School of Management, University of Bath (UK)

Concentration on Business Strategy. Projects of interest undertaken to date:

- Operations analysis and re-engineering of analytical services at Research Centre on Analytical Chemistry
- Human Resource Management practices-Performance linkages in knowledge-based organizations
- Analysis of the Change Management at CRAPC Analytical Services during organisational restructuring
- An ethnographic approach to enterprise risk management : re-emphasizing the risk rationale

2009 studying towards **NEBOSH Occupational Safety and Health Certificate (NGC 1 & 2)**

2001-2005 **PhD in Process Engineering** (*Distinction*), Univ. Science & Technologies-USTHB, Algeria
“Microwaves and ultrasonics extraction of chemical substances from herbs & PCBs from environment samples”

1991- 1999 **Engineer & Master in Environment Engineering** (*1st Honours*), University of Blida, Algeria
“Isolation, characterization and degradation of natural organic matter dissolved in drinking water”

SCHOLARSHIPS-PRIZES

- DAAD Fellowship : visiting researcher at Friedrich Schiller University, Jena-Germany **2007**
- Japanese Gov. Scholarship: one year at chemical reaction engineering Lab. Tohoku University **2003**
- IAC Award: one year Internship as a research engineer at ATO-DLO (WUR), The Netherlands **1999**

LANGUAGES

Arabic, English and French: Fluent (Speaking, writing and Reading) ; Japanese: beginner

RELEVANT TECHNICAL EXPERTISE

1. Supervised projects related to assessment of essential oil composition and biologic properties of medicinal plants
2. expertise in analytical equipments (Gas Chromatography and HPLC) for the analysis of chemical substances as well as the development and validation of analytical procedures for quality control of pharmaceutical and food products
3. Participated to develop capacity building on procedures for the analysis of major pollutants (PCBs, PHAs, pesticides, humic substances) from different matrices (air, water and soil) at CRAPC

ADDITIONAL INFORMATION

IT skills: Word, Excel, PowerPoint, Origin, StatGraphics, SPSS v15, Matlab (basic)

Interests: Football, camping, travelling and reading

Extra-Curricular:

- Member (*Orphans Care Foundation*): settled new centre with colleagues. Achieved a substantial increase in funding from community and secured contribution of furniture from the city council.
- Technical adviser at (*Chlorophyll*, an environment association): increased social responsibility and awareness among citizens. Achievements include plantation days for schools and a green area for children.

RESEARCH PROJECTS-PUBLICATIONS

1. Participated at a multidisciplinary project funded by EPSRC to establish an adaptive extraction processes for high-value chemicals from different natural resources. Achievements includes the development of analytical procedures and a pilot process using hydrofluorocarbons (HFC) and carbonates as green solvents to recover an anti-malarial drug (Artemisinin) from *Artemisia annua L.* Innovated a direct purification method to crystallize Artemisinin directly from the extract.

- Influence of environmental factors on metabolic profile of *Artemisia annua* and their effect on extraction and purification of artemisinin, *In preparation*

- Screening of new solvents for artemisinin extraction process using *ab-initio* methodology, *Green Chemistry*, 2010

- Development of HPLC analytical protocols for quantification of artemisinin in biomass and extracts, *Journal of Pharmaceutical and Biomedical Analysis*, 2009, 49(4) 908-915

1. Executed a project comparing the extraction of a sprout inhibitor (carvone) from *Carum carvi* seeds by means of conventional, ultrasonics et microwave heating processes.

- Rapid extraction of volatile compounds using a new simultaneous microwave distillation: solvent extraction device, *Chromatographia*, 2007, 65 (3/4) 217-222

- Microwave-assisted extraction kinetics of terpenes from caraway seeds, *Chemical Engineering and Processing*, 2005, 44 (12) 1320-1326

- Comparison of conventional and ultrasound-assisted extraction of carvone and limonene from caraway seeds, *Flavour and Fragrance Journal*, 2004, May/June 19(3) 188-195.

- Ultrasound assisted microwave digestion, *Ultrasonics Sonochemistry*, 2004 (11) 5-8

2. Supervised a project funded by SAIDAL to identify essential oil composition and biologic properties of *Thymus algeriensis genuinus*.

3. Supervised a master thesis studying the influence of diet composition based on omega-3 and omega-6 rich oils in human health

4. Application of microwaves and ultrasound technologies for rapid analysis of organic pollutants (PCBs) and for the oxidation of humic acids dissolved in drinking water.

- Analysis of polychlorinated biphenyls in soil and water, 7th International Conference on Chemistry and its Role in Development, 2003, April 14-17, Egypt.