



جامعة بيروت العربية
BEIRUT ARAB UNIVERSITY

Research Center for Environment and Development

**Annual Report
2017-2018**

I. REFLECTION

During the year 2017-2018, the BAU - Research Center for Environment and Development (RCED) witnessed considerable advances in all its ongoing research activities and the newly launched initiatives. This annual report briefly presents a highlight of these activities that mainly aim at promoting knowledge of water resources in Bekaa region, Lebanon and contributing to food and nutrition security of rural communities. The report also includes the outreach and community engagement actions jointly accomplished with other BAU Centers and Faculties as well as local and international NGOs and other scientific research institutions. In addition, RCED continued during this year to play an important role in serving the educational and development mission of BAU by facilitating the research and internship activities for students from Lebanon and abroad and providing them with the opportunity to be involved in field activities, practice their critical thinking and communication skills and abilities to contribute to community service.

II. HIGHLIGHTS

II.1. Scientific Research

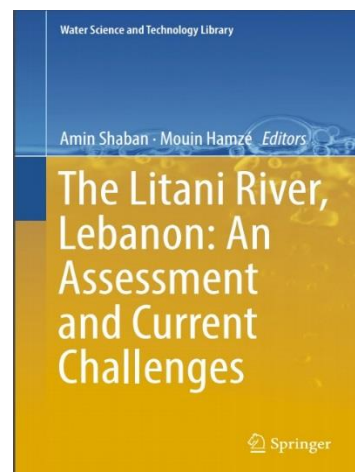
Research activities of this year were focused on four thematic areas, namely; Phytoremediation, Medicinal Plants, Edible Plants and Water Quality. Listed below are the main publications and activities that can reflect relevant achievements:

- **“*Rhus coriaria L.* (Sumac) Evokes Endothelium-Dependent Vasorelaxation of Rat Aorta: Involvement of the CAMP and CGMP Pathways”**, *Frontiers in Pharmacology*, 28 June 2018, (<https://doi.org/10.3389/fphar.2018.00688>).

- Coauthoring of chapter 6 **“Groundwater Quality in the Upper Litani River Basin”**. In the Book: **“The Litani River, Lebanon: An Assessment and Current Challenges”**. Editors: Amin Shaban and Mouin Hamzé. Springer International Publisher. Vol. 85. The book aims at revealing the background knowledge about the physical characteristics of the river and its basin along with the human impact on water resources and related sectors. In addition, it highlights the principal pollution aspects and their impacts in different localities along the river. Therefore, it will discuss the status and the existing challenges for the river.

Chapter 6 reviewed the status of groundwater quality in upper Litani basin illustrating the high-levels of nitrates and microbiological contamination reported in some wells in the basin. It emphasized the need for a long-term monitoring of groundwater quality and its integration as an essential component in the management of water resources of the basin

(<https://www.researchgate.net/publication/264426123> **Water Quality of the upper Litani River Basin Lebanon**).



-Completing the research activities on wild edible leafy plants and fruits from Lebanon and the contribution of two papers entitled **“Proximate composition and nutritional attributes of some wild edible leafy plants from Lebanon”** and **“Preliminary nutritional characterization of some wild edible fruits from Lebanon”** in Symposium 1 on “Plant Genetic Resources: Sustainable Management and Utilization for Food, Nutrition and Environmental Security (5th International Symposium)”, 30th International Horticultural Congress (IHC2018),

Istanbul, Turkey, 12-17 August 2018 attracting almost 1800 delegates from more than 90 countries (<https://www.ihc2018.org/en/S39.html>).



Crataegus azarolus



Malus trilobata



Pyrus syriaca



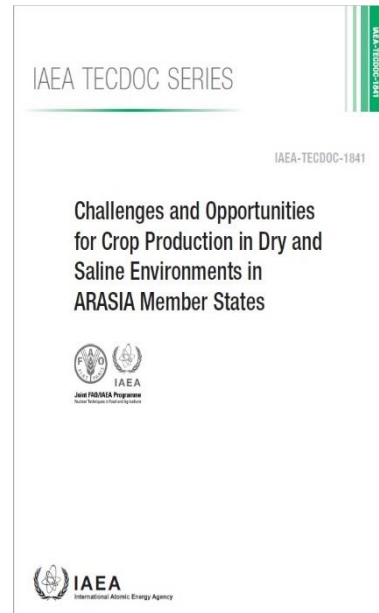
Myrtus communis



Prunus urasine

- Participation in the research activities on medicinal plants and contribution of two papers entitled **“Medicinal plants and traditional ethno veterinary practices by rural community of Lebanon”** and **“Comparative study of essential oil and extracts from *Artemisia herba-alba* Asso. Growing Wild in Lebanon”** in Symposium 29 “Advances in Production and Processing of Medicinal and Aromatic Plants”, 30th International Horticultural Congress (IHC2018), Istanbul, Turkey, 12-17 August 2018 with almost 1800 delegates from more than 90 countries (<https://www.ihc2018.org/en/S39.html>).

- Contribution to Chapter 6 of “**Challenges and Opportunities for Crop Production in Dry and Saline Environments in Arasia Member States**” of the IAEA and the Food and Agriculture Organization of the United Nations (FAO), through the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, and the Division for Asia and the Pacific, on Lebanon. The project aims to assist scientists, policy makers and farmers worldwide to ensure food security and to promote sustainable agricultural resources as well as to develop and transfer technologies in response to real and practical needs. This program assists IAEA Member States in the implementation of suitable nuclear and related techniques to enhance agricultural production. The chapter provides information on salt affected agricultural lands and the use of innovative techniques in dealing with salinity and droughts conditions.



-Participating in the 1st Scientific Congress - Lebanese University, “Safety in Drugs, Food and Water: Whatever enters the body becomes part of it”, March 16, 2018

RCED in collaboration with Dr. Nabil Amacha, Faculty of Science, Lebanese University jointly presented a study on karst groundwater quality and public health risk to 1st Scientific Congress - Lebanese University, “*Safety in Drugs, Food and Water: Whatever enters the body becomes part of it*”, March 16, 2018. This study aimed at assessing and understanding groundwater contamination in Bekaa and impact on public health, emphasizing the need to explore linkages between karst groundwater, contamination, public health and the use of community-based approach as a model for intervention and exposure prevention.

In addition, RCED continues its contribution as a facilitator of several research activities on “**Assessing the phytoremediation potential of the aquatic species *Lemna gibba* and *Lemna minor***” and “**Assessing the role of the species *Phragmites australis* in the constructed wetland of Litani River**”. Also, RCED contributed to the dissemination of to-date-findings by inviting Dr. Pasascal Mall from the Research in Science and Technology for Environment and Agriculture (IRSTEA), France (<http://www.irstea.fr/>) to a round table discussion at BAU on February 7, 2018.

II.2. Outreach and Community Development

– “Mobile Photography for Business Enterprise Advertising”, August 17, 2018

In collaboration with the Lebanese League for Women in Business (LLWB), RCED and the BAU Center of Entrepreneurship hosted a practical workshop on “Mobile Photography for Ad Creation” targeting businesses women and local women NGOs. This workshop was sponsored by WE Initiative, BLC Bank. Ms Hiba Dallal, multimedia expert from Top Design Topics trained participants on enhancing their photographic technical skills and provided them with key tips to take professional photos capturing smart views of products, venues and portraits. This was followed by a practical session in the fabulous settings of RCED gardens during which participants took photo shoots of their products in using what they learned during the training session.



Multimedia Expert Lecturing



Participant's group photo

– "Think Sales & Marketing" Workshop, July 21, 2018

Jointly with LLWB and BAU Center of Entrepreneurship, RCED organized and hosted a workshop on “Think Sales and Marketing” on July 21, 2018 facilitated by marketing communication and brand consultant Ms. Mira Hawa. Through this interactive introductory session, Ms. Hawa provided participants with an overview on how to identify and reach their target clients, define their competitive edge, how to set SMART goals and how simple initiatives could have a great impact. Participants enjoyed a light traditional lunch by Mounet El Mawsam, a newly launched catering service by Mrs Rana Kahwaji. After lunch, BAU representative Mr. Ali Shams PhD candidate from Faculty of Business Administration gave a brief presentation about the importance of having a business brand. BLC bank sponsored the event.



Participants



Dr. Safaa Baydoun, RCED director welcoming



Mr. Ali Shams, PHD Business Lecturing

– **Celebrating “World Water Day 2018”, March 30, 2018**

On World Water Day 2018, under the theme, “Nature for Water”, RCED jointly with Gruppo di Volontariato Civile (GVC)-Italia organized a celebration event on March 30, 2018. This event was funded by UNHCR being the donor of several development projects that support the water networks and services in Bekaa region. The event targeted a group of students from the faculty of Civil Engineering, Beirut Arab University. GVC team of both Italian and Lebanese members shared with participants the organization’s vision and information about its projects in several countries including those implemented in Lebanon. In addition, the use of nature-based approaches for water pumping and improving water quality were presented while examples of best practices were high lightened. This was followed by a site visit to the water system projects implemented by GVC in Qoub Elias, Central Bekaa and open round table.



Participant’s group photo



GVC presenting their water projects in Lebanon



GVC member briefing Qoub Elias water project



Field Visit

– **“Girls’ Day 2018”, March 30, 2018**

On Girls’ Day 2018, RCED, BAU Center of Entrepreneurship and LLWB jointly organized a very successful event entitled “Future Prospects for Girls” on March 30, 2018. In this event LLWB, being one of the most active NGOs regarding the involvement of women in business and social life, targeted a group of local girls and women of Bekaa region.



LLWB expert lecturing

LLWB experts provided the audience a tutorial session on girls' behavior and actions when facing problems or hard times with their families or at work leading to the first steps of success in life. This was followed by a friendly open discussion giving advices and mentoring the participating girls to be prepared to act in certain cases.



Girl's participant



LLWB expert lecturing

– **Participating in “*Earth Day 2018*” at Beirut Arab University, Tripoli Campus**
May 3, 2018

On Earth Day 2018, under the theme, “End Plastic Pollution”, RCED participated in the celebration event organized by BAU, Tripoli on May 3, 2018.



Memorial photo of participants

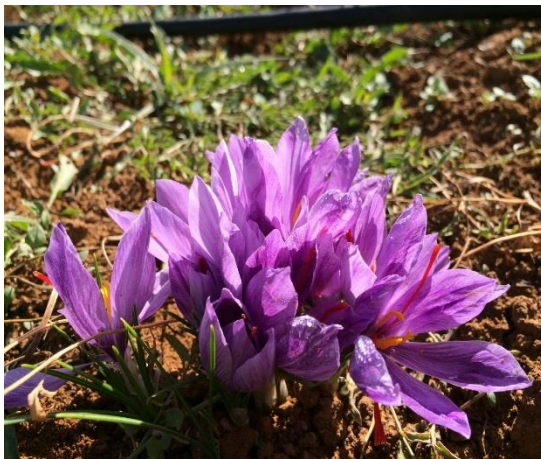


RCED team participation

Aiming at raising the awareness of students, Prof. Khaled Baghdady, Vice President, Tripoli Campus, addressed the audience by a warm welcoming opening emphasizing the important role of public to prevent plastic pollution and protect Lebanese Environment. This was followed by several presentations by professors from the Lebanese University, Prof. Jalal Halawani, and BAU covering topics on solid waste management, challenges facing natural resources and conservation and protection means. A valuable presentation on “Environmental Challenges of Natural Resources in Bekaa” was given by Dr. Safaa Baydoun, Director of RCED, covering the types and the extent of environmental problems of Litani River, Qaraoun Lake, land degradation, urbanization and climate change impact. A snapshot of RCED activities was also introduced. At the closing of this event trophy shields were distributed for the presenters and organizers for their great efforts.

- **Completion of the demonstration activity of Saffron (*Crocus sativus*) Cultivation**

Crocus sativus (Iridaceae), commonly known as Saffron “زعفران”, is an annual herbaceous historically cultivated in the Mediterranean region for the commercial production of the most expensive spice in the world. For its high ecological adaptability for semiarid conditions, the cultivation of *Crocus sativus* in Bekaa region in Lebanon has been recommended as a promising option for rural development especially under the status of climate change. Thus, saffron cultivation has been attempted by individual private efforts and by the Institute of Agricultural Research. In attempt to explore its suitability to grow in Cental Bekaa and provide a continuous source of samples to the Faculty of Pharmacy and other faculties at BAU, RCED established a demonstration activity of saffron cultivation in 2012 that ended in August 2018. A brief report on the activity is developed and circulated to all collaborators and colleagues who are interested in the plant.



Flowering time of Crocus Sativus



Harvested bulbs of RCED Herbal Garden

– **Monthly Workshops of Litani Association of Medical Doctors and Faculty Of Medicine at BAU**

Aiming at sharing knowledge of new findings and advancement in medical and health care field and services, the Research center for Environment and Development jointly with the Litani Association for Medical Doctors and the Faculty of Medicine, BAU organized several monthly workshops during the academic year 2017-2018. Topics covered were Bariatric Endoscopy; Carotid Stenting Subarachnoid Bleeding from Diagnosis to Therapy; Kawasaki Disease; Recurrent Orbital Edema & Erythema; Management of Acute Ischemic Stroke; Recent Advancement in the Treatment of Intracranial Aneurysms among others. Prominent specialists and surgeons as well as pharmaceutical and health care experts discussed the various aspects of each of these themes and topics of national and local concern. A range of national and international pharmaceutical companies such as MSD; STADA; VIAVI Med and ACINO who sponsored the events provided the audience with information of recent products.



Guest speaker



Participants



Drs. Rimon Masaad, Karam Hammoud, Jalal Abdo(at the sides) & two guests speakers (in the middle)

II.3. Academic Orientation

– RCED organized and hosted the "Academic Orientation Forum for the Association of Universities of Lebanon" on Thursday 20th of October, in collaboration with Student Affairs and Admission office. More than 1000 students from schools all across Bekaa region visiting the forum were provided with information about admission and entrance exams of the universities participating in the forum. In addition, RCED represented BAU in several school orientations and forums in Bekaa region to help and guide students about their future university learning.



Participating student's from schools of Bekaa region



– Offering Summer Semester:
A range of 13 courses from elective, core and major courses were offered in summer 2018.
