

PERSONAL INFORMATION



Name: Redouane CHOUKR-ALLAH
Former Professor at Institute of Agronomy and Veterinary Hassan II, Morocco
Senior follow Scientist- Environmental Horticulture
at the International Center for Biosaline Agriculture
Actually, Senior Professor at Mohamed VI Polytechnic University, Benguerir

Date of birth: October 3, 1953

Work address: M 1, Sect 3 Avenue Attine, Hay Riad Rabat
Morocco
Mobile: 00212661203694

Email: redouane53@yahoo.fr
Research Gate <https://www.researchgate.net/profile/Redouane-Choukr-Allah/research>
Skype: redchouk11

BIOGRAPHICAL DATA

A horticultural, soil and water environmental expert with more than 40 years of experience in coordinating and managing field-based projects and technical teams involved in water resources management, the use of saline water and the use of pre-treated sewage in Agriculture.

He holds a Ph.D. degree in environmental horticulture from the University of Minnesota, USA. He is a professor for over 40 years at IAV Hassan II Morocco. He has produced numerous publications, including edited books, research reports, articles in peer-reviewed international journals and conference papers related to water management, wastewater reuse, irrigation, salinity and plant nutrition and Quinoa Value Chain.

As a senior level professor at the Institute of Agronomy and Veterinary Hassan II since 1978, has served as head of the Horticulture Department from the period 1983 to 1996, and a head of the salinity and plant nutrition laboratory since 1996. He joined ICBA as a senior scientist in Horticulture in 2015 for a period of two year and a half and he serves now as Senior follow at ICBA.

He also served as a technical coordinator of a 12 million project, financed by USAID on the water resources sustainability in morocco. In this project he coordinated the feasibility study, the planning, the engineering, the implementation, and the monitoring of 3 pilot projects in preserving water in urban sector (wastewater treatment plant of a small rural community near Agadir) industrial sector (recycling chromium of the tanneries in Fez city) and in Agricultural sector (Nakhla watershed agro-management in the region of Tetouan).

He has extensive experience in use of saline water and of pre-treated sewage in agriculture, and soil and groundwater pollution prevention. He designed and implemented numerous experiments on crop water

requirements and water scheduling and global water requirements to save water and maintain crop yields. As a project manager, he worked extensively on evaluating the use of marginal water in agriculture.

EDUCATION

Diplomas

Baccalaureate in Mathematics	1972	Lycée My Abdellah, Casablanca
General Agronomy diploma	1976	IAV, Rabat
Engineer diploma (Horticulture)	1978	IAV, Rabat and University of California, Davis
PhD (Environmental Horticulture)	1986	University of Minnesota, USA

EXPERTISES

1. Use of non-conventional water resources (saline water and pre-treated urban sewage waters) for horticultural and agricultural production,
2. Enhancing water productivity under marginal environment
3. Horticultural production, hydroponic culture, and protected agriculture development
4. Development of the value Chain of Alternative crops (Quinoa, Amaranth...) under marginal environment.

Recent Projects

2007-2011	IAV Coordinator of MELIA Coordination Action: Fostering the Euro-Mediterranean Integrated Water Resources Management (IWRM) Communities of Practice (FP6 coordination Action). 120 000 Euros.
2009-2013	National coordinator of SWUPMED project (Sustainable Water Use for Securing Food Security in the Mediterranean Region) (FP7 coordination action). Budget 250 000 Euros.
2014-2019	National coordinator of GLOBAQUA project (Effects of multiple stressor on aquatic systems under water scarcity) (FP7 coordination action). 150 000 Euros.
2016 - 2020	National coordinator of MADFORWATER project (DevelopMent AnD application of integrated technological and management solutions FOR wasteWATER treatment and efficient reuse in agriculture tailored to the needs of Mediterranean African Countries. Financed by EU within the framework of Horizon 2020. Budget 170 000 Euros.
2017- 2021	Scaling up quinoa value chain to improve food and nutritional security in poor rural communities of Morocco. IDRC project. Budget 500 000 Euros
2022-2023	Enhancing the Resilience of Smallholder Farms in North and West Africa through Upgrading of Women Managed Milk Value Chains. IDRC project. Budget 1 000 000 Canadian dollars.

Edited books

The 2nd International Laayoune Forum on Biosaline Agriculture. Edited by Abdelazize Hirich and Redouane Choukr-Allah. MDPI St. Alban-Anlage 66 4052 Basel, Switzerland. <https://doi.org/10.3390/environsciproc2022016075>

Biosaline Agriculture as a Climate Change Adaptation for Food Security 2022. Edited by Redouane Choukr-Allah and Ragab Ragab. Published by Springer. <https://doi.org/10.1007/978-3-031-24279-3>

Climate change and sustainable Agriculture in a saline environment 2021. Edited by Kate Negacz, Pier Vellinga, Edward Barrett-Lennard, Redouane Choukr-Allah and Theo Elzenga. published by Routledge Taylor & Francis Group. wwww.taylorfrancis.com

Unlocking the potential of Protected Agriculture in the GCC countries: Cutting water consumption while supporting improved nutrition and food security. 2021. Edited by Redouane Choukr-Allah, Wilfried Baudoin, Khalil Ahmed Ammar. Published by FAO, ICARDA, ICBA. <https://www.fao.org/documents/card/fr/c/CB4070EN>

Emerging Research in Alternative Crops 2020. Edited by Abdelaziz Hirich, Redouane ChoukrAllah · Ragab Ragab, Environment & Policy 58. Published by Springer. <http://www.springer.com/series/5921>

The Souss-Massa River Basin, Morocco, 2017. Edited by Redouane Choukr-Allah · Ragab Ragab · Lhoussaine Bouchaou · Damia Barcelo. The Handbook of Environmental Chemistry. Springer. <http://www.springer.com/gp/book/9783319511290>

Integrated Water Resources Management in the Mediterranean Region: dialogue towards new strategy. 2013 Edited by Choukr-Allah R, Ragab R, Rodriguez-Clemente R. Springer Netherlands, pp 125-137. doi:10.1007/978-94-007-4756-2_8 <https://www.amazon.com/Integrated-Resources-Management-Mediterranean-Region/dp/9400747551>

Water Governance in the Arab Region Managing Scarcity and Securing the Future. 2013. PNUD. Team core member. <https://www.undp.org/arab-states/publications/water-governance-arab-region>

Dialogues on Mediterranean water challenges: Rational water use, water price versus value and lessons learned from the European Water Framework Directive. 2011. Edited by Junier S., El Moujabber M., Trisorio-Liuzzi G Tigrek S., Serneguet M., Choukr-Allah R., Shatanawi M., Rodríguez R. Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 98. <https://www.idaea.csic.es/meliaproject/node/117>

Mediterranean new technologies in protected cultivation. CIHEAM, Paris, 2004.

Greenhouse Production in Mediterranean Area, 1999. Edited by R. Choukr-Allah, *Cahiers Options Méditerranéennes vol. 31.*

Sewage Treatment and Reuse for small communities: Mediterranean and European Experiences, 1998. Edited by R. Choukr-Allah

Halophytes and Biosaline Agriculture. 1996. Edited by R. Choukr-Allah, A. Hamdy and C.V. Malcolm. New York, New York, Marcel Dekker. <http://www.uasbagrilibindia.org/cgi-bin/koha/opac-detail.pl?biblionumber=97380>

Recent reports

The "Agriculture-Water-Energy-Ecosystems" Nexus approach in water management at watershed level - Case of the Souss-Massa River Basin " 2020. Institut Royal des Etudes stratégiques Rabat Morocco. Prepared by A. Larabi, R. Choukr-Allah, M. Sabir and D. Jezli

Country report on the use of brackish waters for agricultural production, funded by FAO, 2012, and prepared by Pr. Redouane Choukr-Allah

Country Report on Successful Interventions to Increased Efficiency and Effectiveness of Treated Wastewater Reuse in Agriculture and Groundwater Recharge: Case of Morocco. Funded by European Neighborhood and Partnership Instrument (ENPI) South/Environment, and prepared by Pr. Redouane Choukr-Allah.

Water reuse in the Arab world: from principle to practice - voices from the field. 2012. Prepared by Abdel-Dayem, Safwat; Taha, Faisal; **Choukr-Allah, Redouane**; Kfour, Claire A.; Chung, Christophe C; Al Saïid, Dalia. Washington D.C. - The World bank.

The reuse of treated wastewater and sludge in Baalbek region, Lebanon, Project No. UTF/LEB/019/LEB on Wastewater reuse and Sludge Valorization and reuse, funded by FAO 2010 and prepared by Pr. Redouane Choukr-Allah

Recent Journal articles and Conferences

- Hirich, A., **Choukr-Allah R**, et al., 2012c. The SALTMED model calibration and validation using field data from Morocco. *Journal of Materials and Environmental Sciences*, 3(2): 342-359.
- Hirich, A., **Choukr-Allah R**, et al., 2013b. Chickpea (*Cicer arietinum L.*) physiological, chemical and growth responses to irrigation with saline water *Australian Journal of Crop Science*, 8(5): 646-654.
- Hirich, A., Jelloul, A., **Choukr-Allah, R.** and Jacobsen, S.E., 2014d. Saline Water Irrigation of Quinoa and Chickpea: Seedling Rate, Stomatal Conductance and Yield Responses. *Journal of Agronomy and Crop Science*, 200(2014): 378–389.
- Seif-Ennasr Marieme, Hirich Abdelaziz, Zine El Abidine El Morjani, **Choukr-Allah Redouane**, Zaaboul Rashid, Nrhira Abdessadek, Malki Mouna, Bouchaou Lhoussaine, Beraaouz Elhassane (2017) Assessment of Global Change Impacts on Groundwater Resources in Souss-Massa Basin. In: Abdalla O., Kacimov A., Chen M., Al-Maktoumi A., Al-Hosni T., Clark I. (eds) *Water Resources in Arid Areas: The Way Forward*. Springer Water. Springer, Cham: 115-140. https://link.springer.com/chapter/10.1007/978-3-319-51856-5_8
- Malki, M., Bouchaou, L., Hirich, A., Brahim, Y. A., & **Choukr-Allah, R.** (2017). Impact of agricultural practices on groundwater quality in intensive irrigated area of Chtouka-Massa, Morocco. *Science of The Total Environment*, 574, 760-770. <http://www.sciencedirect.com/science/article/pii/S0048969716320757>
- Malki M, **Choukr-Allah R**, Bouchaou L, Hirich A, Ait Brahim Y, Krimissa S, Hssaisoune M, Nghira A, Barceló D (2016) Assessment of Groundwater Quality: Impact of Natural and Anthropogenic Contamination in Souss-Massa River Basin. In: Choukr-Allah R, Ragab R, Bouchaou L, Barceló D (eds) *The Souss-Massa River Basin, Morocco. The Handbook of Environmental Chemistry*. Springer Berlin Heidelberg, Berlin, Heidelberg, pp 1-20. doi:10.1007/698_2016_72. http://link.springer.com/chapter/10.1007/698_2016_72
- Hirich A, **Choukr-Allah R**, Nrhira A (2016) Groundwater-Dependent Ecosystems in the Souss-Massa River Region: An Economic Valuation of Ecosystem Services. In: Choukr-Allah R, Ragab R, Bouchaou L, Barceló D (eds) *The Souss-Massa River Basin, Morocco. The Handbook of*

Environmental Chemistry. Springer Berlin Heidelberg, Berlin, Heidelberg, pp 1-34.
doi:10.1007/698_2016_73. http://link.springer.com/chapter/10.1007/698_2016_73

- Malki Mouna, **Redouane C-A**, Lhoussaine B, Yassine AB, Hirich Abdelaziz, Reichert B (2016) Evolution of groundwater quality in intensive agricultural zone: case of Chtouka-Massa Aquifer, Morocco. *Arabian Journal of Geosciences* 9 (10):1-14. doi:10.1007/s12517-016-2592-6. <http://link.springer.com/article/10.1007/s12517-016-2592-6>
- Ragab R, **Choukr-Allah R**, Nghira A, Hirich A (2016) SALTMED Model and Its Application on Field Crops, Different Water and Field Management and Under Current and Future Climate Change. In: Choukr-Allah R, Ragab R, Bouchaou L, Barceló D (eds) *The Souss-Massa River Basin, Morocco. The Handbook of Environmental Chemistry*. Springer Berlin Heidelberg, Berlin, Heidelberg. pp 1-48. doi:10.1007/698_2016_74. http://link.springer.com/chapter/10.1007/698_2016_74
- Hirich A, **Choukr-Allah R**, Nghira A, Malki M, Bouchaou L (2016) Contribution of Seawater Desalination to Cope with Water Scarcity in Souss-Massa Region in Southern Morocco. In: Choukr-Allah R, Ragab R, Bouchaou L, Barceló D (eds) *The Souss-Massa River Basin, Morocco. The Handbook of Environmental Chemistry*. Springer Berlin Heidelberg, Berlin, Heidelberg. pp 1-14. doi:10.1007/698_2016_78. http://link.springer.com/chapter/10.1007/698_2016_78
- Hirich A, Fatnassi H, **Choukr-Allah R** and Ragab R (2016) Prediction of climate change impact on sweet corn grown in the south of Morocco using the SALTMED model. *Irrigation and drainage*. 65 (1), 9-18. <http://dx.doi.org/10.1002/ird.2002>
- **Choukr-Allah, R.**, Nanduri, K.R., Hirich A., Shahid, M., Alshankiti, A., Toderich, K., Gill, S., and Butt, K.U.R. (2016). Quinoa for marginal environments: Towards future food and nutritional security in MENA and Central Asia regions. *Frontiers in Plant Science* 7, 1-11. http://www.frontiersin.org/Journal/Abstract.aspx?s=1202&name=crop_science_and_horticulture&ART_DOI=10.3389/fpls.2016.00346
- Oubelkacem. A, Scardigno. A, **Choukr-Allah.R**. 2020. Treated Wastewater Reuse on Citrus in Morocco: Assessing the Economic Feasibility of Irrigation and Nutrient Management Strategies Integrated Environmental Assessment and Management, Volume16, Issue6, Pages 898-909 ; <https://doi.org/10.1002/ieam.4314>
- Mansir M, Emmanuel Oertlé .E, **Choukr-Allah R**. 2021 Evaluation of the Performance and Quality of Wastewater Treated by M'zar Plant in Agadir, Morocco. *Water* 2021, 13, 954. <https://doi.org/10.3390/w13070954>
- **Choukr-Allah R**, El Mouridi Z, Yamina B, A Shahid A S. 2022. Salt-Affected Soils and Their Management in the Middle East and North Africa (MENA) Region: A Holistic Approach. Published In : *Biosaline Agriculture as a Climate Change Adaptation for Food Security 2022*. Edited by Redouane Choukr-Allah and Ragab Ragab. Published by Springer. <https://doi.org/10.1007/978-3-031-24279-3>
- **Choukr-Allah R**, Ragab R. 2023. Using Saline Water in Biosaline Agriculture for Food Security, In In book: *Biosaline Agriculture as a Climate Change Adaptation for Food Security*.
- Outbakat M, **Choukr-Allah R**, Mohamed EL Gharous M, EL Omari K, Soulaïmani A, EL Mejahed K. 2022. Does phosphogypsum application affect salts, nutrients, and trace elements displacement from saline soils? *Front. Environ. Sci.*, 08 September 2022; *Soil Processes*, Volume 10 - 2022 | <https://doi.org/10.3389/fenvs.2022.964698>
- Bouras, H.; Bouaziz, A.; **Choukr-Allah, R.**; Hirich, A.; Devkota, K.P.; Bouazzama, B. Phosphorus Fertilization Enhances Productivity of Forage Corn (*Zea mays* L.) Irrigated with Saline Water. *Plants* 2021, 10, 2608. <https://doi.org/10.3390/plants10122608>
- Taaime N, Rafik S, El Mejahed K, Oukarroum A, **Choukr-Allah R**, Bouabid R and El Gharous M (2023) Worldwide development of agronomic management practices for quinoa cultivation: a systematic review. *Front. Agron.* 5:1215441. doi: 10.3389/fagro.2023.1215441

- Bouras, H., Bouaziz, A., Bouazzama, B., Hirich, A., & Choukr-Allah, R. (2021). How phosphorus fertilization alleviates the effect of salinity on sugar beet (*Beta vulgaris* L.) productivity and quality. *Agronomy*, 11(8),1491. <https://doi.org/10.3390/agronomy11081491>
- Bouras, H., **Choukr-Allah, R.**, Amouaouch, Y., Bouaziz, A., Devkota, K. P., El Mouttaqi, A., Bassou Bouazzama & Hirich, A. (2022). How Does Quinoa (*Chenopodium quinoa* Willd.) Respond to Phosphorus Fertilization and Irrigation Water Salinity?. *Plants*, 11(2), 216. <https://doi.org/10.3390/plants11020216>
- Bouras, H., **Choukr-Allah, R.**, Mosseddaq, F., Bouaziz, A., Devkota, K. P., Mouttaqi, A. E., Bassou Bouazzama & Hirich, A. (2022). Does Phosphorus Fertilization Increase Biomass Production and Salinity Tolerance of Blue Panicum (*Panicum antidotale* Retz.) in the Salt-Affected Soils of Arid Regions?. *Agronomy*, 12(4), 791 <https://doi.org/10.3390/agronomy12040791>