



COUNCIL'S NEWSLETTER

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The Council Mourns The Death of Prof. David A. Lightfoot

By Abdelmajid Kassem

Prof. David A. Lightfoot is a Professor of Plant Genetics, Genomics, and Biotechnology at the Department of Plant, Soil, and General Agriculture, Southern Illinois University, Carbondale, IL, USA since 1991 until his death on May 3rd, 2020.

Prof. Lightfoot was an active Council member and a Muslim and Arab friendly person. In his lab, many Arabs and Muslims earned their Master and PhD degrees including myself. He was a great man, professor, and educator. He was always patient with his students, postdocs, and staff. To me, he was a true mentor, professor, colleague, collaborator, and friend. He supported me throughout my academic career and he always tells me: "Majid, you are my intellectual son!". He always supported me in all my initiatives such as writing articles in different topics, writing my book, and starting Atlas Publishing, LLC.

Dr. Lightfoot was also a big supporter of the American Moroccan Agricultural Sciences Conference (AMAS Conference) that I co-organize with my colleague and friend Prof. Khalid Meksem of SIUC. Dr. Lightfoot attended AMAS Conference I in Rabat, Morocco in 2013 and fell in love with the beautiful Country of Morocco. He also attended AMAS IV in Meknes in 2018 which was his last before he passed away.

The last time I met him was at the International Plant and Animal Genome XVIII in San Diego, CA which was

held on January 10-14, 2020. As always, I have met him few times, attended his workshops, and discussed science projects with him.

David was born in Morley, West Yorkshire, UK on May 6th, 1960; is survived by his children, Jorge David, Sarah Eugenia, Thomas Fausto, and Marcos Gabriel. Dr. Lightfoot loves to play Golf on his free time and played as a child with his father Tony.

Dr. Lightfoot was a beloved Professor in the Dept. of Plant, Soil and Agricultural Systems at Southern Illinois University Carbondale for 29 years. According to Google My Citations, he had published 345+ peer-reviewed scientific articles, one book, sixteen book chapters, thousands of DNA sequences, and held patent rights to four inventions earning him membership to the National Academy of Inventors. His citations were +3,998 and growing! He will be dearly missed by his family, friends, and colleagues.

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Council's Members Published Articles (January–July 2020)

- Kamal Belhaj, Farid Mansouri, Aziz Tikent, Abdelah Ouchatbi, Mohamed Boukharta, Caid Hana Serghini, and **Ahmed Elamrani** (2020): Quality characteristics of the carcass of Beni-Guil sheep, a Protected Geographical Indication certified product of Eastern Morocco: Preliminary study; *Revue d'élevage et de médecine vétérinaire des pays tropicaux*, 2020, 73 (1) : 21-26. Link: <https://creativecommons.org/licenses/by/4.0>.
- Duangjai Tungmunthum, **Ahmed Elamrani**, Malika Abid, Samantha Drouet, Reza Kiani, Laurine Garros, Atul Kabra, Addi, and Christophe Hano (2020) A Quick, Green and Simple Ultrasound-Assisted Extraction for the Valorization of Antioxidant Phenolic Acids from Moroccan Almond (*Prunus dulcis* (Mill.) D.A. Webb) Cold-Pressed Oil Residues, *Appl. Sci.* 2020, 10(9), 3313; <https://doi.org/10.3390/app10093313>. Link: <https://www.mdpi.com/2075-1729/10/6/80>
- Duangjai Tungmunthum, Malika Abid, **Ahmed Elamrani**, Samantha Drouet, Mohamed Addi and Christophe Hano (2020): Almond Skin Extracts and Chlorogenic Acid Delay Replicative Aging by Enhanced Oxidative Stress Response Involving SIR2 and SOD2 in Yeast, *Life* 2020, 10(6), 80; <https://doi.org/10.3390/life10060080>. Link: <https://www.mdpi.com/2075-1729/10/6/80>.
- **Naoufal Lakhssassi**, Sarbottam Piya, Dounya Knizia, Abdelhalim El Baze, Cullen Mallory, Jonas Meksem, Aicha Lakhssassi, Tarek Hewezi, and **Khalid Meksem**. Mutations at the Serine Hydroxymethyltransferase impact its interaction with a Soluble NSF Attachment Protein and a Pathogenesis-Related Protein in soybean. *Vaccines*, 2020, (8) 349.
- **Naoufal Lakhssassi**, Sarbottam Piya, Sadia Bekal, Shiming Liu, Zhou Zhou, Catherine Bergounioux, Long Miao, Jonas Meksem, Aicha Lakhssassi, Karen Jones, **My Abdelmajid Kassem**, Moussa Benhamed, Abdelhafid Bendahmane, Kris Lambert, Adnane Boualem, Tarek Hewezi, and **Khalid Meksem**. A pathogenesis related protein GmPR10-08 promotes a molecular interaction between the GmSHMT08 and GmSNAP18 in resistance to *Heterodera glycines*. *Plant Biotechnology*, 2020, 1-20.
- Al-sahlany STG, Altemimi AB, Al-Manhel AJA, Niamah AK, **Lakhssassi N**, and Ibrahim S. Purification of Bioactive Peptide with Antimicrobial Properties Produced by *Saccharomyces cerevisiae*. *Foods*, 2020. 9 (3), 324.
- Al-Hashimi AG, Ammar AB, Cacciola F, and **Lakhssassi N**. Development of a Millet Starch Edible Film Containing Clove Essential Oil. *Foods*, 2020. 9 (2), 184.
- Asaad Rehman Saeed Al-Hilphy, Ammar B. Al-Te-mimi, Hassan Mehdi, Uttpal Anand, Gonzalo Delgado Pando, and **Naoufal Lakhssassi**. Ultrasound applications in poultry meat processing: A systematic review. *Journal of Food Science*, 2020. 85(6). DOI: 10.1111/1750-3841.15135.
- Alaa R. Abdulstar, Ammar Altemimi, Asaad Rehman Saeed Al-Hilphy, Dennis Watson, and **Naoufal Lakhssassi**. Water distillation using an Ohmic heating apparatus. *International Journal of Ambient Energy*, 2020. doi: 10.1080/01430750.2020.1773924.
- Jiazheng Yuan, Nacer Bellaloui, Naoufal Lakhssassi, Samer M. AbuBakr, Safiah Kassem, Zakariah Kassem, Sakinah Kassem, Courtney Barnes, Aeisha McLelland, Barbara Brown, Wendy Adams, Tarik El-Mellouki, Khalid Meksem, and **My Abdelmajid Kassem**. Evaluation of Yield Performance of Soybean Mutant FM6-847 in North Carolina. *Atlas Journal of Plant Biology*, 2020, pp. 96–105.
- **Abdeslem El Idrissi**. Taurine Regulation of Neuroendocrine Function. *Adv Exp Med Biol* 2019; 1155: 977-985. doi: 10.1007/978-981-13-8023-5_81.
- Jeremy Just and **Mohammed Bendahmane**. Rosa Spp. *Trends In Genetics*. 2020 36 (2): 146-147. doi: 10.1016/j.tig.2019.11.002. Epub 2019 Dec 10.

Congratulations to our Members!
Keep Up the Good Work!

Prof. Ahmed Elamrani's Research Group Achievements

Conference Communications:

- C1 Belhaj K, Mansouri F, Sindic M, Boukharta M, Serghini Caid H, Elamrani A (2020): Trace element and essential amino acids content in Longissimus Lumborum muscle from three sheep meats reared in outdoor conditions, 25th National Symposium for Applied Biological Sciences, 31 January 2020, ULg - Gembloux Agro-Bio Tech-Campus, Belgium
- C2 Kamal Belhaj Taaifi Y., Mansouri F., Sindic M., Boukharta M., Serghini Caid H. and Elamrani A. (2020): "Effect of rearing season on the sheep meat quality traits of Beni-Guil breed from the highlands of Morocco" The 1st international, E-conference on Climate Nexus Perspectives (I2CNP); Water Food and Biodiversity, EST-Khenifra, Moulay Sliman University, June, 4th, 2020
- C3 Melhaoui R, Kodad S, Abid M, Serghini-caid H, Sindic M and Elamrani A (2020): Effect of region of almond trees growing and Almond varieties on the quality of their almond oils, 25th National Symposium for Applied Biological Sciences, 31 January 2020, ULg - Gembloux Agro-Bio Tech-Campus, Belgium
- C4 Kodad S, Melhaoui R, Boukharta M, Addi M, Serghini H, Elamrani A, Abid M, Mihamou A (2020): Micropropagation of selected Almond genotypes (*Prunus dulcis* Mill.) cultivated in Eastern Morocco based on their pomological studies, 25th National Symposium for Applied Biological Sciences, 31 January 2020, ULg - Gembloux Agro-Bio Tech-Campus, Belgium
- C5 Souhayla Kodad Melhaoui R, Addi, Elamrani A., Serghini H, Abid M, Mihamou A. (2020): "Micropropagation of promising almond genetic resources based on oxidative stability of edible seed oils", The 1st international, E-conference on Climate Nexus Perspectives (I2CNP); Water Food and Biodiversity, EST-Khenifra, Moulay Sliman University, June, 4th,

2020

- C6 Houmy N, Belhaj K., Melhaoui R., Sindic M., Richel A. & Elamrani A., "Chemical characterization of almond meal as a by-product of the mechanical extraction of almond oil" the 1st international, E-conference on Climate Nexus Perspectives (I2CNP); Water Food and Biodiversity, EST-Khenifra, Moulay Sliman University, June, 4th, 2020

Research Funded Grant (June 2020-Dec 2023)

- Grant for the Project "Valorisation des graines de Cannabis sativa L. par leur caractérisation biochimique et leur introduction dans le régime alimentaire de la poule pondeuse/ 2ème Appel à projets dans le domaine de la Valorisation des Plantes Médicinales et Aromatiques / Project coordinator Prof. Ahmed ELAMRANI, UMP Oujda, Morocco. https://www.cnrst.ma/images/CNRST/PDF/2eme_Appel_valorisation_des%20Plantes-LISTE_14_PROJETS_RETENUS.pdf.
- Grant for "PARA" project on postharvest valorization of almonds, almond oil and its coproducts (Project PARA-1 (2019 -2021, UMP Oujda) : Amandier dans la région orientale du Maroc : Biodiversité et Valorisation en post récolte des Amandes, dérivés et sous-produits d'amande). Link: PARA-1 (2019 -2021)/ Amandier dans la région oriental du Maroc : Biodiversité et Valorisation en post récolte des Amandes, dérivés et sous-produits d'amande.

Congratulations to Dr. Kamal Belhaj!

Kamal Belhaj, a Ph.D. student in Prof. Ahmed Elamrani's research group defended his doctoral dissertation on Wednesday, July 8th, 2020. A member of his dissertation committee attended and participated in the debate of committee by videoconference (Google Meet) from his Agronomic Institute (ISIA, HECh-Huy) in Belgium. Congratulations Kamal and welcome to the Doctors (PhDs) club!

The Khenifra Higher School of Technology in Morocco Organized its 1st International e-Conference on Climate Nexus Perspectives I2CNP: Water, Food and Biodiversity on June 4th, 2020 (Dr. Lahcen El Youssfi)



The Environment and Natural Resources Management Research Team (E.G.R.N) in the Khenifra Higher School of Technology, Sultan Moulay Slimane University, Morocco, organized its 1st international e-conference entitled Climate Nexus Perspectives I2CNP: Water, Food and Biodiversity on June 5th, 2020. The e-conference had been scheduled for last June, 2020, as an on-site event in the ESTK avenue. Yet, due to the COVID-19 pandemic outbreak, the event was postponed to be run in the form of an e-conference in the above-mentioned date which coincides with the World Environment Day, celebrated by the United Nations every year.

The e-conference was organized in partnership with Universités del Desarrollo and the University of Concepcion in Chile, the African Academy of Sciences based in Kenya, the Global Academy of Young Scientists (Global Young Academy) based in Germany, the Laboratory of Plant Biotechnology and Sustainable Management of Natural Resources of the Poly-disciplinary Faculty of Beni Mellal, the National Center for Fisheries Research, and the Nature Solution Association in Morocco.

The event attracted an enormous interest on the

part of participants which was translated into a considerable number of participations despite the restrictive conditions of confinement and lockdown. More than 150 doctoral students, researchers, professors, practitioners, and professionals confirmed their participations, including 4 keynote speakers from Chile, Canada and Morocco and 94 presenters of oral communications. In addition to the Moroccan participants belonging to all the Moroccan universities and national research centers, the e-conference has been a platform for significant contribution of several international researchers belonging to 17 countries: Nigeria, South Africa, Cameroon, Benin, Egypt, Algeria, Oman, Iran, India, Canada, Chile, Romania, Croatia, Spain, Belgium and France.

The focus of the event was on the prevalence of threats to the climate on the one hand and the crises related to biodiversity, water and food security on the other. Not only was the emphasis made on these key factors, but it was also made on the raising global environmental issues/consequences of the degradation of ecosystems. The latter requires a response integrating all the interactions of the Nexus. Therefore,

the organization of this event aimed to address intricate questions linked to integrated natural resource management, proposing sustainable solutions that allow better adaptation and resilience to climate change.

In this frame, the research areas covered by the conference were:

- Climate change: impact and resilience of biodiversity
- Nature-based approaches to climate change mitigation and adaptation
- Sustainable management of water resources and impacts of climate change
- Sustainable management of fishery and aquaculture resources
- Impact of climate change on fisheries and aquaculture
- Climate change and sustainability of agricultural production systems
- Water, Energy Food "Nexus"
- Food security challenges and preservation of agro-ecosystems
- Food in the future
- Natural solutions and applied sciences to mitigate the negative effects of crises (climate change, COVID-19 Pandemic) on the socio-economic and environmental level.

The e-conference was a convenient space for exchange on the programmed themes and a platform for networking, partnership-seeking, and bridge-building among researchers, participants and their institutions. It is also worth mentioning that collaboration was encouraged between regions especially between those marked by less cooperation. Thus researchers from Latin America, represented by Chile, and researchers from Africa, represented by Morocco, and other African countries, have come together for potential future projects and further promising ideas ahead.

Apart from the noticeable scientific/academic perspectives shared in the gathering, the conference equally showcased the organizational spirit and teamwork in the Khenifra Higher School of Tech-

nology, Sultan Moulay Slimane University, along with its partners.

For more information on the conference and its program, see the following page: <https://estk.ac.ma/ESTK/55-actualites/328-climate-nexus-conference-june-2020>.

Dr. Lahcen El Youssfi's Activities

- 1 Dr. El Youssfi organized the First International Conference on Climate Nexus Perspectives I2CNP: Water Food and Biodiversity.
- 2 Dr. El Youssfi was Elected Executive Committee member of the Global Young Academy in Germany: Dr El Youssfi Lahcen, Sultan Moulay Slimane University Morocco, an AAS Affiliate in the field Agricultural & Nutritional Sciences, was elected into the Global Young Academy (GYA) Executive Committee during its Annual General Meeting, on 12 June 2020. The GYA was created with a vision to give a voice for young scientists around the world and it is hosted at the German National Academy of Sciences Leopoldina. The GYA empowers early-career researchers to lead international, interdisciplinary, and intergenerational dialogue by developing and mobilising talent from six continents. Its purpose is to promote reason and inclusiveness in global decision-making. Members are chosen for their demonstrated excellence in scientific achievement and commitment to service. <https://globalyoungacademy.net/gya-annual-general-meeting-convenes-virtually-members-choose-new-leadership>.
- 3 Opportunity for early career scientists from Africa: Call for the African Academy of Sciences Affiliates 2020. <https://www.aasciences.africa/calls/call-aas-affiliates-2020>.

Dr. Lahcen El Youssfi,
EST of Khénifra, Sultan Moulay Slimane University
Member of the Global Young Academy GYA
Young Affiliate of the African Academy of Sciences
Agronomy Engineer, IAV Hassan II, Morocco

Innovative Management of Animal Genetic Resources (IMAGE): An EU H2020 Funded Project (Dr. Badr Benjelloun)



About one third of domestic breeds are considered to be at risk of extinction, as reported by the FAO (DAD-IS, 2019). The Global Plan of Action for Animal Genetic Resources identified conservation as a Strategic Priority Area to be addressed. In order to preserve the genetic diversity of livestock in complementarity to in-vivo conservation, ex-situ in-vitro cryoconservation of animal reproductive material represents an excellent and cost-effective alternative. New progress in structural and functional genomics and novel methods in reproductive technology allow for an unprecedented characterization of animal genetic resources and for an effective use of cryo-preserved material.

In this context, within the EU H2020 funded project IMAGE “Innovative Management of Animal Genetic Resources”, the National Institute of Agronomic Research INRA-Morocco has organised from 20 to 26 January 2020 (i) a one-day workshop that brought together Moroccan stakeholders, decision-makers and scientists for discussing strategies for the management of local farm animal genetic resources. It was organized in Rabat on the 20Th January (ii) an international 5-days training workshop session that made together 20 PhD students, post-

docs and researchers from different citizenships in Beni Mellal city. The purpose was to exchange with decision makers, scientists and professionals on the basis of the cumulated knowledge during the project and elsewhere. The participants in both events had heterogeneous backgrounds. The discussions undertaken have generated original ideas and emitted practical proposals for the management of FAnGR at the African level.

Agenda of the one-day seminar: January 20, 2020 – Rabat, Morocco

09.00 am: Registration and opening buffet

09h30-10h00: Openings

- Dr Faouzi Bekkaoui (Director of INRA-Morocco and Chair of the seminar)

- Dr Michèle Tixier Boichard (IMAGE Project Coordinator)

10h00-10h15: Impact of climate change on animals and livestock systems. Dr Abdelmajid Bechchari, Dr Bouchra El Amiri & Dr Badr Benjelloun (INRA-Morocco)

10h15-10h35: Diversity and valorization of local farm animal genetic resources in Morocco. Case of



small ruminants. Dr Badr Benjelloun, Dr Hayat Lionboui & Dr Fouad Elame (INRA-Morocco), Dr Abderrahmane Janoune (ANOC), Mr Khalid Boukhari (DDFP- MAPMDREF Morocco)

10h35-10h55: Management and conservation strategies for livestock species in Morocco. Dr Mouad Chentouf & Dr Mustapha Ibnelbachyr (INRA-Morocco)

10h55-11h15: Global strategies for conservation of animal genetic resources (in vitro and in vivo). Dr Gregoire Leroy (FAO), Dr Sipke-Joost Hiemstra (Director CGN_Netherlands, ERFP-Europe), Dr Paul Boettcher (FAO)

11h15-11h30: Economic analysis of genetic diversity in farm animals. Dr Dominic Moran (University of Edinburgh)

11h30-11h50: Implementation, management and use of animal gene banks. Dr Michèle Tixier Boichard (INRAE-France), Dr Coralie Danchin (IDELE-France)

11:50-12:20: Success stories:

(i) The plant genebank in INRA-Morocco. Dr Ali Sahri (INRA-Morocco)

(ii) Animal gene banks in France. Dr Michèle Tixier-Boichard (INRAE-France)

12h20-13h20: Debate involving decision-makers, professionals, development, research and training actors under the topic: Opportunities for conservation of animal genetic resources and sustainable development of livestock in Morocco.

13h20-13h30: Conclusions and recommendations

13h30-14h30: Lunch

Agenda of the Training Course (Workshop): January 21-25, 2020 - Beni Mellal, Morocco

Tuesday 21/01

09:00 - 10:30: Lecture 1: Introduction to genetic diversity in Livestock species. Domestication, local adaptation, diversification of livestock species. Badr Benjelloun & Michèle Tixier Boichard

Coffee

11:00 - 12:30: Lecture 2: Conservation strategies (in situ, ex situ). Sipke-Joost Hiemstra

Lunch

13:30 - 15:00: Lecture 3: Building genebank collections and using stored material. Sipke-Joost Hiemstra

Coffee

15:30 - 17:00: Lecture 4: Advances in cryoconservation technologies Philippe Monget & Bouchra El Amiri

17:00-19:00: Forming groups

19:30: Dinner

Wednesday 22/01

09:00 - 10:30: Lecture 5: Genome neutral and adaptive diversity. Gwendal Restoux & Badr Benjelloun

10:30-11:00: Coffee-break.

11:00 - 12:30: Exercise: Introduction to Linux and Measures of genomic diversity from SNP data. Badr Benjelloun & Gwendal Restoux

Lunch

13:30 - 15:00: Lecture 6: Functional genomics. Julie Demars



15:30 - 17:00: Exercise: Neutral/Adaptive diversity and decisions for balancing conservation/production. Gwendal Restoux & Badr Benjelloun.

17:00-19:00: Group work

19:30: Dinner

Thursday 23/01

09:00 - 10:30: Lecture 7: Equipment and infrastructure and quality management. Michèle Tixier Boichard & Bouchra El Amiri

Coffee

11:00 - 12:30: Lecture 8: Economic assessment of diversity and gene banking policies. Dominic Moran

Lunch

13:30-16:30: Field trip: visit of Sardi herds in Tadla area.

17:00-19:00: Group work: Decision on conservation in a given situation: Moroccan goats

19:30: Dinner

Friday 24/01

09:00- 10:00: Lecture 9: Current solutions on genotyping/sequencing and advances - Potential of nanopore technologies for genotyping for instance - IMAGE multispecies DNA chip. Michèle Tixier Boichard & Badr Benjelloun

10:00- 11:15: Lecture 10: Adaptive/productive introgression - genome editing e.g. Introgression of blue egg in poultry. Michèle Tixier Boichard

Coffee

11:30 - 12:30: Lecture 11: Legal issues, property of

the cryopreserved material, Nagoya Protocol. Michèle Tixier Boichard

Lunch

13:30 - 16:00: Group presentations and discussion

Coffee

16:00 - 19:00: Debate on a draft of "Moroccan sheep and goats' conservation ex-situ program".

19:30: Dinner

Saturday 25/01: Pleasure trip in the Atlas area

Lecturers:

- Dr Michèle Tixier-Boichard (INRAE France)
- Dr Badr Benjelloun (INRA Maroc)
- Dr Sipke-Joost Hiemstra (Wageningen University & Research, Netherlands)
- Dr Dominic Moran (Edinburg Univ., UK)
- Dr Rafael De Oliveira Silva (Edinburg Univ., UK)
- Dr Bouchra ElAmiri (INRA Maroc)
- Dr Gwendal Restoux (INRAE France)
- Dr Julie Demars (INRA France)
- Dr Philippe Monget (INRAE France)



**Dr. Badr Benjelloun,
Editor-In-Chief, JART**

Dr. Badr Benjelloun of INRA, Morocco, and a member of the Council was recently nominated as the Editor-In-Chief of Journal of Animal Research and Technology (ISSN-2153-3504) published by Atlas Publishing, LLC.

Dr. Benjelloun and Atlas Publishing, LLC are calling for papers to be submitted to the journal. To submit your manuscript, please visit the journal's website at: <http://journals.atlas-publishing.org/index.php/JART>.

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