

Hédia Tnani



EDUCATION

2019
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2020

Master in TICV

National School of Engineering (ENIT)

📍 Tunis, Tunisia

- Graduate Program in System Biology, Machine Learning, Image Processing and Deep Learning
- **Skills:** Python programming, Image processing using OpenCV, Machine Learning algorithms, Time series

2018
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2019

Master in Big Data

Centrale University (UC)

📍 Tunis, Tunisia

- Graduate Program in Big Data and Machine Learning
- **Skills:** Big data tools (Hadoop, Spark, Storm, Flink, Flume, Sqoop), NoSQL databases (MongoDB, Cassandra, CouchDB), Object oriented programming

2007
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2012

PhD in Biotechnology

Centre for Research in Agricultural Genomics (CRAG)

📍 Barcelona, Spain

- **Research project:** [The structure and function of maize scutellum during early stages of germination](#)
- **Scholarship:** Becas Predoctoral I3P
- **Advisor:** [Carlos Vicient](#)
- The structure and function of maize scutellum during early stages of germination
- Construction of cDNA library for macroarrays and gene expression analysis of the microarrays
- Transgenic plant characterization and mutant plant analysis
- Confocal microscopy and subcellular localization
- Quantitative subproteomic analysis of germinating related changes in the scutellum oil bodies of Zea mays
- Molecular characterization of ZmPTR1, a maize peptide transporter expressed in the epithelial cells of the scutellum during germination
- Bioinformatics tools: primer design, DNA/RNA sequence analysis, sequence alignment (GenBank, NCBI, TIGR Maize Database, Maize GDB, MSU Rice Genome Annotation Project)
- Agrobacterium-mediated transformation of Arabidopsis thaliana using the floral dip method

2004
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2007

Master in Plant Breeding

CIHEAM Zaragoza, Mediterranean Agronomic Institute of Zaragoza

📍 Zaragoza, Spain

- Graduate Program in Plant breeding
- **Dissertation:** The structure and function of maize scutellum during early stages of germination
- **Advisor:** [Carlos Vicient](#)



CONTACT INFO



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For more information,
please contact me via
email.

SKILLS



R tidyverse ggplot



Python Shell



Git GitHub



Docker AWS

LANGUAGES

Arabic, French: Native

English: Proficient

Spanish: Proficient

Last updated on 2021-04-28



RESEARCH PROJECTS

2018
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Currently

PostDoctoral Fellow

Pasteur Institute of Tunis (IPT). Laboratory of Bioinformatics, Biomathematics and Biostatistics (BIMS)

📍Tunis, Tunisia

- Drug discovery: Study of gene expression during infection to understand the Host-Pathogen interaction of *L.major* and Network Propagation analysis
- Identification of novel drug targets in Leishmania major using in-silico metabolic coupling
- Part of the H3ABioNet Workflows, Machine Learning, RefGraph, Gene Association WPs
- Development of Shell, R and Python pipelines for bioinformatics data analysis
- Cloud computing using AWS
- Nextflow pipeline for Variant Calling analysis and RNA-seq
- Continuous Integration of the bioinformatic workflows

2013
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2017

PostDoctoral Fellow

International Rice Research Institute (IRRI) 📍Los Baños, Philippines

- Project manager of a BMZ project on developing flood tolerant rice varieties
- Fine mapping and candidate gene analysis of a QTL for anaerobic conditions during germination
- Identification of new QTLs for tolerance to anaerobic conditions using Genome Wide Association Studies (GWAS) and 3K Rice Genomes Project
- RNA-seq data analysis of anaerobic germination (AG) tolerant varieties
- SNP Data Analysis and QTL mapping: Plink, Haploview, TASSEL, FLAPJACK, GAPIT, GenomeBrowse, IGV

2012
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2013

PostDoctoral Fellow

National Centre of Scientific Research (CNRS) 📍Rouen, France

- Project manager of the research aspect of an Interreg project between France (CNRS / University of Rouen) and England (University of Portsmouth)
- Development of bio-based cleaning wipes and filters using antiviral effects of polyphenols
- Protein analysis (plant protein extraction, viral protein extraction, SDS page analysis, 2D electrophoresis analysis)



PROJECTS

2020
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Currently

Instructor - The Carpentries

- [The Carpentries](#)

2020
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Currently

R-Ladies Tunis Co-founder

📍Tunis, Tunisia

- [R-Ladies](#)



TEACHING EXPERIENCE

- 2020 • **Teaching Assistant (TA)**
H3ABioNet 📍 Online
· [H3ABioNet Int_BT_2020 course](#)
- 2020 • **Teaching Assistant (TA)**
Higher School of Statistics and Information Analysis (ESSAI) 📍 Tunis, Tunisia
· Course: Introduction to Bioinformatics using R and Python
· The students got introduced to the analysis of genomic data. They played with SARS-COV2 sequences and made Multiple Sequence Alignment (MSA). At the end of this course the students developed a [Shinyapp](#) and published their [report](#) in rpubs.



GRANTS

- 2007 | 2012 • **Predoctoral I3P Scholarship** 📍 Barcelona, Spain
· Superior Council of Scientific Research Predoctoral I3P fellowship (CSIC)
- 2004 | 2007 • **CIHEAM Scholarship** 📍 Zaragoza, Spain
· International Center for Advanced Mediterranean Agronomic Studies fellowship (CIHEAM)



PUBLICATIONS IN JOURNALS

- 2021 • **Enriched-GWAS and Transcriptome Analysis to Refine and Characterize a Major QTL for Anaerobic Germination Tolerance in Rice**
International Journal of Molecular Sciences
· Tnani H, Chebotarov D, Thapa R, Ignacio JCI, Israel WK, Quilloy FA, Dixit S, Septiningsih EM, Kretzschmar T
- 2015 • **Antiviral effects of polyphenols: development of bio-based cleaning wipes and filters** 📍 Journal of Virological Methods 2015, 212: 1-7
· Catel-Ferreira M, Tnani H, Hellio C, Cosette P, Lebrun L
- 2013 • **ZmPTR1, a maize peptide transporter expressed in the epithelial cells of the scutellum during germination** 📍 Plant Science 2013, 207: 140-147
· Tnani H, López I, García-Muniz N, Vicient CM
- 2012 • **Quantitative subproteomic analysis of germinating related changes in the scutellum oil bodies of Zea mays** 📍 Plant Science 2012, 191: 1-7
· Tnani H, López I, Jouenne T, Vicient CM
- 2012 • **Expression profile of maize (Zea mays) scutellar epithelium during imbibition** 📍 Journal of Plant Physiology 2012, 169: 1430-1433
· Tnani H, García-Muniz N, Vicient CM, López I

- 2011 • **Control of the scutellar epithelial cell elongation during germination in maize (*Zea mays* L.)**
 • Seed Science and Technology 2011, 39: 253-258
 • Tnani H, López I, Vicient CM
- 2011 • **Protein composition analysis of oil bodies from maize embryos during germination**
 • Journal of Plant Physiology 2011, 168: 510-513
 • Tnani H, López I, Jouenne T, Vicient CM



WORKSHOPS TAUGHT

- 2019 • **RNA-Seq Downstream analysis using R**
 International Rice Research Institute (IRRI) • Los Baños, Philippines
 • Workshop on R for Genomic Data Analysis



ORAL COMMUNICATIONS

- 2014 • **Differential quantitative proteomics analysis of the phage T4 under exposure to polyphenols using Label-free LC-MSMS**
 IRRI PBGB seminar • Los Baños, Philippines
 • Tnani H, Cosette P, Jouenne T
- 2007 • **Gene expression in the scutellum of germinating maize**
 ISSS Workshop on Molecular Aspects of Seed Dormancy and Germination
 • Salamanca, Spain
 • Tnani H, López Ribera I, Vicient CM
- 2006 • **Temporal and spatial variations of maize scutellum transcriptome during germination**
 IVth Workshop on Plant physiology. Catalan Society of Biology
 • Barcelona, Spain
 • Tnani H, López Ribera I, Vicient CM



POSTER PRESENTATIONS



- 2014 • **Fine mapping and candidate gene analysis of a QTL for anaerobic conditions during germination**
 4th International Rice Congress • Bangkok, Thailand
 • Tnani H, Ignacio JC, Pelayo MA, Israel WK, Kretzschmar T, Septiningsih E
- 2010 • **A new maize peptide transporter involved in the transport from the endosperm to the embryonic axis**
 Xth Congress Of Plant Molecular Biology • Valencia, Spain
 • Tnani H, López Ribera I, Vicient Sánchez CM
- 2010 • **Gene expression in the scutellum of wild-type and dwarf1 maize mutant during germination**
 20th International Conference on Plant Growth Substances
 • Tarragona, Spain
 • Vicient Sánchez CM, Tnani H, López Ribera I
- 2008 • **The transcriptome of maize scutellum**

• López I, Tnani H, Miquel M, Vicient CM

- 2006 • **Expression profile of maize scutellum**
VIIIth Congress of Plant Molecular Biology  Pamplona, Spain
• López I, Sánchez-Pons N, Miquel M, Bastida M, Tnani H,
Puigdomènech P, Vicient CM






MEETUP PRESENTATIONS

- 2020 • **R - Introduction to R (R-Ladies Tunis)**
[Meetup R-Ladies Tunis](#)  Online
• Workshop in English
- 2020 • **R - Data Structures in R**
[Meetup R-Ladies Tunis](#)  Online
• Workshop in English





SHORT COURSES ATTENDED

- 2019 • **Introduction to robotics**
University of Coimbra  Coimbra, Portugal
• [Introduction to robotics and artificial intelligence \(AI\)](#)
- 2018 • **Advanced R for Bioinformatics**
Uppsala University  Visby, Sweden
• [Advanced Bioinformatic training](#)
- 2017 • **Bioinformatics and Genome analysis**
Institut Pasteur de Tunis  Tunis, Tunisia
• [Advanced Bioinformatic training](#)



REFERENCES

- **[Dr. Tobias Kretzschmar](#)**
Southern Cross Plant Science  Australia
• Email: tobias.kretzschmar@scu.edu.au
- **[Dr. Endang Septiningsih](#)**
Department of Soil and Crop Sciences, Texas A&M University  United States
• Email: eseptiningsih@tamu.edu