# Hédia Tnani

## 🎓 EDUCATION

**2019 | 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 | 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 | 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 chracterization 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 | 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

Markdown aws aws

## LANGUAGES

**Arabic, French:** Native

**English:** Proficient

**Spanish:** Proficient

*Last updated on 2020-10-22*

# 💻 RESEARCH PROJECTS

**2018 | 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
- H3ABioNet WP chair
- Development of Shell, R and Python pipelines for bioinformatics data analysis
- Cloud computing using AWS
- Nextflow pipeline for Variant Calling analysis

**2013 | 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 | 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 | Currently**

### Instructor - The Carpentries

- The Carpentries

**2020 | Currently**

### R-Ladies Tunis Co-founder

📍 Tunis, Tunisia

- R-Ladies

## 👥 TEACHING EXPERIENCE

**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 Alignement (MSA). At the end of this course the students developped 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

**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**
IXth Congress Of Plant Molecular Biology
📍Santiago de Compostela, Spain
· 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

**2020**

**Run Your Genomics Pipelines with Nextflow on the AWS Cloud**
Amazon                                           ⚲ Online
· Bioinformatics training

**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 Bioinformatics training

**2017**

**Bioinformatics and Genome analysis**
Institut Pasteur de Tunis                         ⚲ Tunis, Tunisia
· Advanced Bioinformatics training

**2016**

**Best practices in Marker-Assisted Plant Breeding**
International Rice Research Institute (IRRI)  ⚲ Los Baños, Philippines
· Bioinformatics training

**2016**

**High Impact Presentation**
International Rice Research Institute (IRRI)  ⚲ Los Baños, Philippines
· Plant breeding training

**2016**

**Introduction to Linux / Unix & Perl scripting for bioinformatics**
Institut Pasteur de Tunis                         ⚲ Tunis, Tunisia
· Bioinformatics training

**2016**

**Microarray /RNASeq, Functional genomics**
Institut Pasteur de Tunis                         ⚲ Tunis, Tunisia
· Bioinformatics training

**2015**

**Preparing for leadership 3 modules**
International Rice Research Institute (IRRI)  ⚲ Los Baños, Philippines
· Soft skills

**2015**

**Publishing with Impact**
International Rice Research Institute (IRRI)  ⚲ Los Baños, Philippines
· Publishing training

**2015**

**Writing Proposals**

· Publishing training

**2015**  **Introduction to Next-Generation Sequencing Data Analysis**
Philippine Genome Center  Los Baños, Philippines
· Bioinformatics training

**2015**  **Genome Assembly, Annotation, and Variant Calling**
Philippine Genome Center  Manila, Philippines
· Bioinformatics training

**2014**  **SNP Data Analysis Training Course**
International Rice Research Institute (IRRI)  Los Baños, Philippines
· Bioinformatics 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