

VIDYA S VURUPUTOOR

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Graduate Student- MSc Plant Biotechnology- Molecular plant breeding and phytopathology-
Applied green bioinformatics

Objective

The complexity with which a microorganism interacts with its host plant, ranging from being symbiotic to parasitic is a marvelous biological phenomenon to study. I am interested in understanding the relationship these organisms have with their hosts and how they have co-evolved over the years. Understanding this plant-microbe relationship can lead to probable solutions for agriculture and lead to efficient crop management practices.

Education

Degree / Date of Graduation

	Institution	Score	Country	Year of Graduation
MSc Plant Biotechnology	Wageningen University and Research	**	Wageningen, The Netherlands	October 2019
B. Tech Biotechnology	Vellore Institute of Technology (VIT)	9.02	Tamil Nadu, India	2017
12th Grade: CBSE Certification	National Academy for Learning	94.6%	Karnataka, India	2013

** - Overall CGPA not yet calculated

Experience

Projects:

1. "Analysis of the effect of MiVAP-1 Mutants on *A. thaliana*"
 - Understanding the role of *Meloidogyne incognita* venom like allergen protein, also known as MiVAP-1.
 - *Key learning aspects:* Preparation of tissue culture plates, SDS-PAGE gels, root length analyses and ROS assays

- Under the guidance of Koen Varossieau and Prof. Geert Smant, in the course “Molecular Aspects of Biotic Interactions” at the Lab of Nematology in Wageningen University and Research
2. *“In silico design of a chromium biosensor”*
 - Under the guidance of Prof. Ramanathan K, a GFP based chromium biosensor was designed using bioinformatics. I was introduced to programs like PyMol, Modeller, validation servers like PROCHECK; and metal ligand binding software like HeX.
 3. *“Linking heat stress and sugar metabolism in Phoenix dactylifera via co-expression analysis”*
 - Under the guidance of Prof. Babu S, my teammates and I were looking for a link between heat stress and sugar metabolism in date palm. We were introduced to a variety of programs like MEGA and FGESH.

Bachelor's Thesis (January '17- May '17):

Bioconversion of leather waste to biofertilizer.

Key learning aspects: Analysis of microbial colonies, assays to measure concentration of hydroxyproline (indicator of collagen degradation); Genomic DNA isolation; PCR to amplify the gene that may cause this leather degradation.

The project was done under the guidance of Prof. S Babu in Vellore Institute of Technology, Vellore.

Master's Thesis (September '18- April '19):

Genome annotation of the beet cyst nematode- includes the structural and functional annotation of the genome. Used a linux environment and shell scripts to run processes that uncovered the number of repeats (RepeatMasker) and estimated the number of genes (MAKER and BRAKER). There was a start in the functional annotation, using programs InterProScan and BLAST. DAMMIT annotation was also used to predict the function of these genes.

Key learning aspects: Insight into nematode parasitism, obtaining data from large genome datasets, genome annotation, basic programming.

Under the supervision of dr. Hans Helder and dr. Martijn Holtermann, Lab of Nematology, Wageningen University and Research.

Courses taken in Wageningen University and Research:

Molecular aspects of biotic interactions, plant-microbe interactions, plant biotechnology, genomics, bioinformation technology and molecular systems biology

Internships

Dümmen Orange (Genetics Intern from May-Oct '19)

Exploring the Rose genome for resistance genes.

Duration: 5.5 months

I assessed the rose genome for signatures of selection, domestication and diversity of resistance genes. In this project three major questions will be explored, starting from estimating the number of resistance genes in the Rose, how this compares to other *Rosaceae* plants (woodland strawberry, peach, plum, etc.) and how domestication may have affected these genes. Key aspects: Learning R, using selection pressure statistics (F_{ST} , Tajima's D , π) and handling large sequenced data.

Norwich Clinical Service (Bioanalytical Lab)

Duration: 1 month (May '15)

I was assigned to the Bioanalytical Lab. The key aspects of this learning experience include: understanding the procedure involved in drug validation and production, understanding the basic procedure of clinical trials. During the internship, I had the opportunity to learn basic protocol/procedures to analyze drug concentration in blood sera.

Biological E Ltd. (Quality Control Department)

Duration: 1 month (Dec '14)

Although I was assigned to the Quality Control Department, I had the opportunity to visit each department of this company, ranging from production and manufacturing to quality control and assurance. The key aspects of this learning experience include: understanding vaccine quality control protocols, learning the basic operation of a vaccine production industry ranging from research and development to quality control.

Published Papers:

Role of Nutrition in Cancer- Vuruputoor, VS., & Kalaichelvan, C. (2015). View of Role of nutrition in cancer. Research Journal of Pharmacology and Toxicology. 6. 58-63.

Statistical Analysis of State-wise Dengue Data in India- Karuppasamy, Ramanathan & Shreenidhi, R & Vidya, VS & Veerappapillai, Shanthi. (2015). Statistical Analysis of Statewise Dengue Data in India. Research Journal of Pharmaceutical, Biological and Chemical Sciences. 6. 1557-1567

Allergens and Molecular Diagnosis- Vuruputoor, VS., Adak S. and Kalaichelvan, C. (2017) Allergens and Molecular Diagnosis. Research Journal of Pharmaceutical, Biological and Chemical Sciences. 8. 37-48.

A Nutrition Dense Additive for Processed food items- Singh, G., Vuruputoor, V. S., & Kalaichelvan, C. (2018). A Nutrition Dense Additive for Processed food items. Research Journal of Pharmacy and Technology, 11(6), 2229-2234.

Extra-curricular:

Treasurer of Indian Student Association at Wageningen University and Research (March '18-March'19)

Part of Sol! - Choir in Wageningen