

*Oren Rabinowitz*

*Curriculum Vitae*

*May 2022*

**-Personal Information and Contact-**

**Email:** oren.rabinowitz7878@gmail.com

**Permanent Mailing Address:** 11 Fairmount Avenue, Morristown, N.J. 07960

**-Research Interests-**

Natural Products Chemistry + Translational Medicine

Ethnobotany • Pharmacology • Biopolymers

**-Science Teaching Interests-**

Student engagement via experience- and discussion-based learning

Emphasis on creative knowledge synthesis and real-world problem solving

Modernizing curricula for lecture and laboratory biology courses

Science education for non-scientists

**-Education-**

*TBD*

**Postdoc,** Technion-Israel Institute of Technology, Haifa, Israel

Cannabinoid and Psilocybin Translational Medicine

Faculty of Biology

Advisor: Prof. Dedi Mieri

2018 - 2022      **Ph.D.**, Rutgers University, New Brunswick, N.J., USA  
Plant Biology: Natural Products Chemistry (*GPA: 3.8*)  
School of Environmental & Biological Sciences  
Advisor: Prof. Ilya Raskin

2016 - 2018      **M.Sc.**, Tel Aviv University, Tel Aviv, Israel  
Molecular Biology and Ecology of Plants  
George S. Wise Faculty of Life Sciences  
Advisors: Prof. Lilach Hadany & Prof. Nir Ohad

2009 - 2014      **B.A.**, University of Colorado at Boulder, C.O., USA  
Ecology and Evolutionary Biology  
Department of Ecology and Evolutionary Biology  
Thesis Advisor: Prof. Erin A. Tripp  
Minor: Oceanic and Atmospheric Sciences

### **-Academic Positions-**

#### Teaching Assistant Student Evaluations (Rutgers University, 2018-2022)

*Averaged (n= 91) TA Evaluation Scores: SIRS-CTAAR Standard Form\**

*Scores: 0 (strongly disagree) to 5 (strongly agree)*

<u><b>Oren Rabinowitz</b></u>	<u>Dept. Life Sciences</u>
Teaching effectiveness- <b>4.62</b>	<i>Department average-</i> 4.26
Organized & prepared- <b>4.71</b>	<i>Department average-</i> 4.44
Generated interest- <b>4.79</b>	<i>Department average-</i> 4.31
Positive attitude- <b>4.74</b>	<i>Department average-</i> 4.47
Encouraged learning- <b>4.62</b>	<i>Department average-</i> 4.24

*\*Full evaluations available on request.*

2022

• Lecturer: Biology of Seed Plants (230)

Delivered instruction of two weekly 1.5 hour lectures on the biology of vascular plants for 76 biological sciences undergraduate students. Topics covered include plant systematics, taxonomy, anatomy, physiology, reproduction, biochemistry, cell biology, respiration and photosynthesis, evolution, and ecology. Responsible for course management, coordinated Teaching Assistants and laboratory instruction, delivered lectures, created and uploaded online content for optimal remote classroom experience, updated lecture materials to reflect recent discoveries and current trends in the discipline, wrote and graded exams, approved and submitted final grades, edited laboratory exercises and manuals, coordinated laboratory technicians and support, organized field trips, mentored students, held office hours.

Rutgers University, Newark, N.J., US

2022

• Co-Instructor: Ethnobotany (205)

Shared delivery of instruction of one weekly 1.5 hour lecture and one weekly recitation on the ethnobotanical record of traditional and indigenous cultures from around the world for 27 life science undergraduates. Topics covered include traditional and modern uses of ethnobotanical plants as foods, medicines, dyes, fibers, building materials, spices, fragrances, & entheogens, scientific writing and surveying, general botany, history and domestication of food crops, phytochemistry, and food security. Systematically revised and updated all lecture materials and modular resources, developed hybrid in-person/online asynchronous course content, developed weekly quiz-based learning examinations, led group discussions, organized in-class demonstrations and guest lectures, hosted recitation, mentored students, held office hours, grading.

Rutgers University, New Brunswick, N.J., US

2021

• Teaching Assistant: Medicinal Plants (316)

Assisted instruction of two 1.5 hour weekly lectures on the history, classification, extraction, and uses of phytochemicals for 34 undergraduate students. Topics covered include botany of medicinal plants and field identification, phytochemistry of terpenes, phenylpropanoids, alkaloids, polyphenols, cannabinoids, history and relevance of systems of traditional

and folk medicine, and the politics of bioprospecting, legalization, biodiversity, and genetic/cultural conservation. Systematically revised and updated all lecture materials and modular resources to reflect current trends in the discipline, maintained online content, developed weekly quiz-based learning examinations, hosted recitation, led field trips, mentored students individually, held office hours, grading.

Rutgers University, New Brunswick, N.J., US

2021

- Teaching Assistant: Principles of Biology Laboratory (103)

Instructed two weekly 3-hour introductory biology laboratories for 24 undergraduate students. Responsible for prep, pre-lab lecture, exam proctoring, field trips, office hours, and grading. Contributed to curriculum design, lab manual editing, and pedagogical methods. Subjects covered included introductory evolution, ecology, cell biology, genetics, human physiology, anatomy, and microbiology.

Rutgers University, New Brunswick, N.J., USA

2020

- Graduate Student Coordinator: Departmental Seminar Series (625)

Responsible for invited speaker contact, coordination, delegation, organization, and faculty hosting logistics for the Department of Plant Biology Natural Products and Human Health Biennial Spring Seminar Series.

Rutgers University, New Brunswick, N.J., USA

2018 - 2020

- Teaching Assistant: Biological Research Laboratory (117)

Instructed two weekly 4-hour research technique-focused laboratories for 48 undergraduate life science majors per semester for three semesters. Responsible for prep, pre-lab lecture, exam proctoring, safety, mentorship, office hours, and grading. Subjects covered included the scientific method, environmental sampling, PCR, gel electrophoresis, microbial culture, serial dilutions, protein quantification, DNA sequence analysis, statistics, and bioinformatic tools. Advised group research projects, led conference-style presentations at the end of each semester, and delivered online instruction.

Rutgers University, New Brunswick, N.J., USA

2015

- Teaching Assistant: Introduction to Ecology (101)

Assisted instruction of an introductory course in desert ecology for 19 international undergraduate students. Responsible for classroom prep, lecture, herbarium curation, mentorship, field trips, group discussions, and grading individual and group presentations, papers, and exams.

Arava Institute for Environmental Studies, Ben Gurion University of the Negev, Ktara, Israel

### **-Related Work Experience-**

2017- 2022

- HerbMedPro Database Compiler; American Botanical Council

Remote maintenance and development of a searchable proprietary online database of indexed summaries of key findings from scientific articles and clinical trials on the pharmacology of herbs and respective phytochemical constituents for consumer, academic, and industrial clients.

American Botanical Council, Austin, T.X., USA.

2017

- Intern; Brooklyn Botanical Garden

Maintenance and propagation of garden accessions. Updated signage, managed weeding projects, and identified pests and diseases. Completed professional development coursework in botany, plant pathology, and public garden management.

Brooklyn, New York City, NY, USA

2016

- Hourly Researcher; Hadany Lab

Greenhouse maintenance and growth of *Oenothera drummondii*: extraction and LC-MS analysis of nectar polysaccharides.

Tel Aviv University, Tel Aviv, Israel

2015

- Research Intern; AIES Center for Desert Ecology

Population dynamics and spatial ecology of *Vachellia tortilis*: backcountry navigation, sample collection, standardized field measurements of desert tree species, NDVI photography, data analysis and presentation.

Arava Institute for Environmental Studies, Ktura, Israel

2014

- Curatorial Assistant; Jerusalem Botanical Gardens

Updated garden signage to feature current taxonomic classification and engaging facts about garden accessions. Developed botanical and ecological curricula for visiting school groups and senior citizens.

Jerusalem Botanical Gardens, Jerusalem, Israel

2014

- Laboratory Intern; Winters Lab

Antimicrobial activity of *Vachellia tortilis* crude extract: sample collection, crude extract prep, partitioning, MTT cell viability assay, data analysis.

Arava and Dead Sea Science Center, Hatzevah, Israel

2013

- Hourly Researcher; Seastedt Lab

Effect of nitrogen deposition and reduced rainfall on high alpine meadow plant composition: field plant identification, backcountry navigation, herbarium voucher specimen creation, biomass weighing, statistics.

Institute for Arctic and Alpine Research, Boulder, C.O., USA

2013

- Intern; Musconetcong Watershed Association

Taught grade-school level ecology and plant biology to inner city youth in the New Jersey countryside, assessed water quality index (WQI) on river and well water.

Musconetcong Watershed Association, Asbury, N.J., USA

### **-Skill and Method Proficiency-**

*Clinical:* Protocol writing and revision, scheduling, subject recruitment and coordination, procedural administration and support, data analysis for IRB-approved preclinical studies.

*In vivo:* Animal care and handling (mouse + rat), ovalbumin-induced rhinitis model, TPS-induced dermatitis model, laceration-induced wounding model, necropsy, dissection, & tissue prep.

*Ex vivo:* Whole and citrated blood component separation and experimental analysis. Physiological and viscoelastic measures of animal skin sections. Novel assay development using fresh animal skin sections for dermatological studies.

*In vitro:* Cell and tissue culture, passaging, viability assays, scaffold copolymer biocompatibility, and cryopreservation; human neonatal dermal fibroblasts, human keratinocytes, HeLa human cervical cancer cells, RAW 264.7 murine macrophages, plant tissue culture, bacteria, fungi, & virus propagation, infection, and culture, live/fixed cell antibody/fluorophore conjugate staining.

*In silico:* General code, docking, structural prediction, and modeling of small molecule/receptor & protein/ligand interactions using Autodock Tools, Autodock *Vina*, PyMol, DiscoveryStudio, and CADD.

*In the field:* Woody and herbaceous plant and seed identification, dichotomous keys, herbarium voucher sample prep, environmental sampling, backcountry navigation, belay rock and tree climbing, all terrain-driving.

*In the lab:* DNA/RNA/protein extraction/purification/isolation, gel electrophoresis, qRT-PCR, GC & LC-MS, affinity/thin layer/ion exchange/column chromatography, organic solvent-based small molecule extraction/purification/isolation, serial dilution, standard curve, epifluorescence microscopy, confocal microscopy, SEM prep, protocol development, ect.

*Administration:* eIACUC protocol development and submission, eIRB protocol development and submission, ordering, reimbursement forms, vendor communications, proofreading grant drafts.

*Content development:* Instructional videos on molecular biology techniques, photography for laboratory websites, lectures, quizzes, and exams content development for various institutional online teaching platforms.

### **-Awards and Scholarships-**

- 2021 • Momental Foundation Mistletoe Research Grant (**10,000 USD**)
- 2020 • Rutgers University Department of Plant Biology Graduate Student Scholarship (**5,000 USD**)
- 2019 • Robert T. Rosen Graduate Student Scholarship for Natural Products Chemistry (**2,000 USD**)  
• Rutgers University Predoctoral Leadership Academy Scholarship (**1,000 USD**)
- 2015 • British Friends of the Jerusalem Botanic Gardens Curatorial Scholarship (**3,526 USD**)
- 2014 • Arava Institute for Environmental Studies Masa Scholarship (**2,550 USD**)
- 2013 • University of Colorado at Boulder Undergraduate Research Opportunities Program Award (*UROP*) (**750 USD**)

### **- Academic Engagement-**

- 2021 - 2022 • *Fellow* (nominated, awarded)  
Mistletoe Research Fellowship; a nine-month accelerator program partnering doctoral students at R1 universities with established venture-capital funded companies with matching interests designed to expose students to the world of startups and to lend their expertise to small companies seeking consultations on the subject of the student's field. Consulted with innovative and social impact startups on current research

and development goals.

Rutgers University, New Brunswick, N.J., USA

2020 - 2021

- *Fellow* (nominated, awarded)

Predocctoral Leadership Development Academy Fellowship; a year-long professional development seminar in higher-education administrative leadership with invited university presidents, deans, and management. Participated in formal and informal meetings and presentations with university administrators on a range of subjects including governance, policy, academics, board meetings, shareholders, diversity, public relations, and crisis management.

Rutgers University, New Brunswick, N.J., USA

2019- 2020

- *Founder and President* (self-appointed)

Natural Products and Biodiversity Graduate Student Organization (NPBGO); a graduate student organization focused on biochemical and phytochemical diversity research. Hosted weekly discussions of potential applications and valorization/development pathways.

Rutgers University, New Brunswick, N.J., USA

2016- 2018

- *Tour Guide* (applied, awarded)

Tel Aviv University Botanical and Zoological Gardens; led guided tours through the university public garden space for interested groups.

Tel Aviv University, Tel Aviv, Israel

### **- Conference Presentations-**

2021

- Plants for Human Health International Workshop, Rutgers University, New Brunswick, N.J., USA

Presentation title: Applications of *Moringa oleifera* seed albumins in dermal health and skincare.

2018 • 8th Annual Israel Plant Ecology Conference, Tel Aviv University, Tel Aviv, Israel

Presentation title: Hygroscopic integumental sclereids facilitate dispersal in *Lamium amplexicaule*

2016 • 3rd North American AAN Regional Conference, Harvard University, Boston, M.A., USA

Presentation title: Ethnobotany of the *Acacia* species of the Negev Desert.

### **-Botanical Expeditions-**

2017 • Lichen survey and GPS tree tagging, 3 days.  
Asheville, North Carolina, U.S.

2016 • Orchid hunt, 1 day.  
Pine Barrens, New Jersey, U.S.

2015 • Understory vegetative survey, 1 day.  
Eshkol Forest, Central District, Israel.

2014 • GPS tree tagging and associated species survey, 4 days.  
Arava Valley, Negev Desert, Israel.

2013 • Riparian vegetative survey, 1 day.  
Left Hand Canyon, Boulder, Colorado, U.S.

### **-In the News-**

2016 'Mystery of the Aspen Powder: Undergraduate Highlights'  
<http://www.colorado.edu/ebio/2015/10/20/mystery-aspen-powder>

2015 'Director's Blog from the Arava Institute of Environmental Studies'  
<http://arava.org/2015/02/directors-blog-january-2015-2/>

2013 '*Muscognetcong Watershed hosts Meet the River Program*'  
[https://www.lehighvalleylive.com/newjersey/2015/01/musconetcong\\_river\\_water\\_quali.html](https://www.lehighvalleylive.com/newjersey/2015/01/musconetcong_river_water_quali.html)

#### **-Research Mentorship-**

Antonia K., Class of 2024, Ph.D., Rutgers University, USA

Nicole A., Class of 2022, B.Sc., Rutgers University, USA

Sukaina I., Class of 2019, B.A., Tel Aviv University, Israel

#### **-Research Publications-**

6. *(Dissertation chapter in prep)*

5. *(Dissertation chapter in prep)*

4. *(Dissertation chapter in prep)*

3. **Rabinowitz O.** Hygroscopic surface structures involved in the development of the water gap in *Lamium amplexicaule* seeds. *(Unpublished; manuscript available)*

2. Groner, E., A. Rapport, N. Negev, G. Ragolski, R. Nelvitsky, K. Alexander, **O. Rabinowitz**, M. Grundeld, B. Shalmon, A. Tsoar, S. Isaacson, I. Moshe, G. Winters. (2017). A standardized protocol to monitor Acacia trees in the Arava. *Negev, Dead Sea and Arava Studies*, 9(1). *(Hebrew)*

1. **Rabinowitz O.**, & E. A. Tripp. (2015). A Note on the Observable Bark Coloration of *Populus tremuloides*. *Western North American Naturalist*, 75(3).

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